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=> fil reg; d stat que 17
FILE 'REGISTRY' ENTERED AT 14:55:44 ON 29 MAR 2009
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STRUCTURE FILE UPDATES:  27 MAR 2009  HIGHEST RN 1128305-29-2
DICTIONARY FILE UPDATES: 27 MAR 2009  HIGHEST RN 1128305-29-2
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L5 STR

~~END~~
1 2

NODE ATTRIBUTES:

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NSPEC  IS RC  AT  1
NSPEC  IS RC  AT  2
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
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GRAPH ATTRIBUTES:

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RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  2
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STEREO ATTRIBUTES: NONE

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L7 109078 SEA FILE=REGISTRY SSS FUL L5
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100.0% PROCESSED 936416 ITERATIONS 109078 ANSWERS
SEARCH TIME: 00.00.03
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=> fil capl; d que nos 133; d que nos 134; d que nos 139; d que nos 142; d que nos
1128
FILE 'CAPLUS' ENTERED AT 14:56:00 ON 29 MAR 2009
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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FILE COVERS 1907 - 29 Mar 2009 VOL 150 ISS 14
FILE LAST UPDATED: 27 Mar 2009 (20090327/ED)

Caplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2008.

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<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

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L5          STR
L7          109078 SEA FILE=REGISTRY SSS FUL L5
L8          74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
L11         144202 SEA FILE=CAPLUS SPE=ON ABB=ON BATTER?/OBI
L14         16353 SEA FILE=CAPLUS SPE=ON ABB=ON APROTIC?/BI
L32         87563 SEA FILE=CAPLUS SPE=ON ABB=ON FUEL CELL#/OBI
L33         13 SEA FILE=CAPLUS SPE=ON ABB=ON L8 AND (L11 OR L32) AND L14

L5          STR
L7          109078 SEA FILE=REGISTRY SSS FUL L5
L8          74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
L11         144202 SEA FILE=CAPLUS SPE=ON ABB=ON BATTER?/OBI
L17         186137 SEA FILE=CAPLUS SPE=ON ABB=ON SUPPORT?/OBI
L32         87563 SEA FILE=CAPLUS SPE=ON ABB=ON FUEL CELL#/OBI
L34         3 SEA FILE=CAPLUS SPE=ON ABB=ON L8(L) L17 AND (L11 OR L32)

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OR 110-71-4/BI OR 1313-13-9/BI OR 134435-36-2/BI OR 25322-68-3/
BI OR 33027-66-6/BI OR 485399-26-6/BI OR 52627-24-4/BI OR
55593-38-9/BI OR 593094-52-1/BI OR 639065-14-8/BI OR 639065-15-
9/BI OR 639067-35-9/BI OR 639067-36-0/BI OR 639067-37-1/BI OR
7439-93-2/BI OR 96-49-1/BI)
L5          STR
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L8          74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
L11         144202 SEA FILE=CAPLUS SPE=ON ABB=ON BATTER?/OBI
L22         8 SEA FILE=REGISTRY SPE=ON ABB=ON L2 NOT L7
L23         250787 SEA FILE=CAPLUS SPE=ON ABB=ON L22
L25         77091 SEA FILE=CAPLUS SPE=ON ABB=ON ANODE#/OBI
L26         108158 SEA FILE=CAPLUS SPE=ON ABB=ON CATHODE#/OBI
L27         346576 SEA FILE=CAPLUS SPE=ON ABB=ON ELECTRODE#/OBI

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 L35 24 SEA FILE=CAPLUS SPE=ON ABB=ON (L25 OR L28) AND (L26 OR L29)
 AND L8 AND (L23 OR L11)
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 /OBI
 L39 6 SEA FILE=CAPLUS SPE=ON ABB=ON L35 AND L38

L2 18 SEA FILE=REGISTRY SPE=ON ABB=ON (105-58-8/BI OR 108-32-7/BI
 OR 110-71-4/BI OR 1313-13-9/BI OR 134435-36-2/BI OR 25322-68-3/
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 9/BI OR 639067-35-9/BI OR 639067-36-0/BI OR 639067-37-1/BI OR
 7439-93-2/BI OR 96-49-1/BI)
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 L8 74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
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 L22 8 SEA FILE=REGISTRY SPE=ON ABB=ON L2 NOT L7
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 /OBI
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 AND L38 AND (L25 OR L26 OR L28 OR L29)

L5 STR
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 L8 74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
 L38 30050 SEA FILE=CAPLUS SPE=ON ABB=ON NONAQ?/OBI OR NON/OBI(W)AQUEOUS
 /OBI
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 L128 1 SEA FILE=CAPLUS SPE=ON ABB=ON L8 AND L124 AND L38

=> s 133,134,139,142,1128
 L139 29 (L33 OR L34 OR L39 OR L42 OR L128)

=> d ibib abs hitstr 1139 1-29

L139 ANSWER 1 OF 29 CAPLUS COPYRIGHT 2009 ACS ON STN
 ACCESSION NUMBER: 2009:259308 CAPLUS Full-text
 DOCUMENT NUMBER: 150:286861
 TITLE: Nonaqueous electrolyte solution for secondary
 battery and secondary nonaqueous electrolyte
 battery comprising the electrolyte solution
 INVENTOR(S): Kanno, Hiroshi
 PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
 SOURCE: PCT Int. Appl., 37pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent

LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2009028567	A1	20090305	WO 2008-JP65329	20080827
W:	AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

PRIORITY APPLN. INFO.: JP 2007-219226 A 20070827

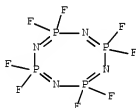
AB The electrolyte solution comprises a cyclic phosphazene compound represented by: (NPR₁₂)_n (R₁ = halo, alkoxy, or aryloxy group; n = 3-4), and a fluorine-containing organic solvent obtained by fluorinating at least one hydrogen atom in a mol. of an aprotic organic solvent. The battery has the electrolyte solution, a cathode, and an anode. The inventive nonaq. electrolyte solution for secondary batteries enables to remarkably improve safety of a secondary nonaq. electrolyte battery without lowering battery performance.

IT 14700-00-6 26471-90-9 33027-68-8
 55593-39-0 67823-76-1 607744-75-2
 1009369-67-8

RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte solns. having cyclic phosphazene compds. and
 fluorine-containing organic solvents for secondary lithium batteries
)

RN 14700-00-6 CAPLUS

CN 2λ5,4λ5,6λ5,8λ5-1,3,5,7,2,4,6,8-
 Tetrazatetraphosphocine, 2,2,4,4,6,6,8,8-octafluoro- (CA INDEX NAME)



RN 26471-90-9 CAPLUS

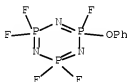
CN 1,3,5,2,4,6-Triazatetraphosphorine, dichlorotetrafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



4 (D1-F)

2 (D1-Cl)

RN 33027-68-8 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,2,4,4,6-pentafluoro-6-phenoxy- (CA INDEX NAME)

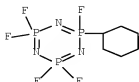
RN 55593-39-0 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
triethoxytrifluoro- (CA INDEX NAME)

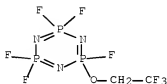
3 (D1-F)

3 (D1-O-Et)

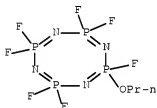
RN 67823-76-1 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2-cyclohexyl-2,4,4,6,6-pentafluoro-
2,2,4,4,6,6-hexahydro- (9CI) (CA INDEX NAME)

RN 607744-75-2 CAPLUS

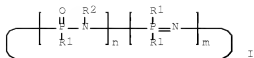
CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine,
2, 2, 4, 4, 6-pentafluoro-6-(2, 2, 2-trifluoroethoxy)- (CA INDEX NAME)

RN 1009369-67-8 CAPLUS

CN 2λ5, 4λ5, 6λ5, 8λ5-1, 3, 5, 7, 2, 4, 6, 8-
Tetrazatetraphosphocine, 2, 2, 4, 4, 6, 8-heptafluoro-8-propoxy- (CA INDEX NAME)REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMATL139 ANSWER 2 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2008:1397471 CAPLUS Full-text
DOCUMENT NUMBER: 149:560279
TITLE:Nonaqueous electrolytes for
fuel cells and their
nonaqueous electrolyte fuel
cellsINVENTOR(S): Horikawa, Yasuo
PATENT ASSIGNEE(S): Bridgestone Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13pp.
CODEN: JKXXAFDOCUMENT TYPE: Patent
LANGUAGE: JapaneseFAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008282578	A	20081120	JP 2007-123584	20070508
PRIORITY APPLN. INFO.:			JP 2007-123584	20070508
OTHER SOURCE(S):	MARPAT	149:560279		

GI



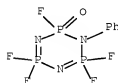
- AB The nonaq. electrolytes contain (A) nonaq. solvents involving cyclophosphazane compds. I (R1 = F, alkoxy, alkenyloxy, aryloxy; R2 = alkyl, cycloalkyl, alkenyl, aryl; n = 1-4, m = 0-3, n + m = 3, 4) and optionally, non-protonic organic solvents, and (B) supporting salts. The fuel cells contain the nonaq. electrolyte, a cathode, and an anode.
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
1082071-27-9 1082403-12-0 1082463-36-2
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolytes containing cyclophosphazane compds. for fuel cells)
- RN 96-49-1 CAPLUS
- CN 1,3-Dioxolan-2-one (CA INDEX NAME)



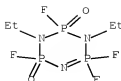
- RN 105-58-8 CAPLUS
- CN Carbonic acid, diethyl ester (CA INDEX NAME)



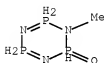
- RN 1082071-27-9 CAPLUS
- CN 2λ5,4λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,2,4,4,6-pentafluoro-1,6-dihydro-1-phenyl-, 6-oxide (CA INDEX NAME)



- RN 1082403-12-0 CAPLUS
- CN 2λ5-1,3,5,2,4,6-Triazatriphosphorine,
1,5-diethyl-2,2,4,6-tetrafluoro-1,4,5,6-tetrahydro-, 4,6-dioxide (CA
INDEX NAME)



RN 1082463-36-2 CAPLUS

CN 2λ5,4λ5-1,3,5,2,4,6-Triazatriphosphorine,
tetrafluoro-1,6-dihydro-1-methyl-, 6-oxide (CA INDEX NAME)

4 (D1—F)

L139 ANSWER 3 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2008:38139 CAPLUS Full-text

DOCUMENT NUMBER: 148:144881

TITLE: Preparation of lithium salts for lithium secondary
batteries

INVENTOR(S): Yamamoto, Takashi; Matsui, Masaki

PATENT ASSIGNEE(S): Toyota Motor Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

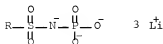
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008001672	A	20080110	JP 2006-175407	20060626
PRIORITY APPLN. INFO.:			JP 2006-175407	20060626
OTHER SOURCE(S):		CASREACT 148:144881; MARPAT 148:144881		

GI



I

AB Li salts I (R = fluoroalkyl, alkyl, phenyl), which show increased Li transport
when used as supporting electrolytes for Li secondary batteries, are prepared

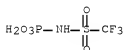
by reacting RSO₂NHP(O)(OH)₂ (II; R = same as above) with basic Li compds. Thus, MeOH solution of LiOH was added dropwise to EtOH solution of II (R = CF₃) (preparation given) and the reaction mixture was stirred at room temperature overnight to give I (R = CF₃).

IT 1001025-42-6P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (preparation of Li salts as supporting electrolytes for Li secondary batteries by reacting (fluoroalkylsulfonyl)phosphoramidic acids with basic Li compds)

RN 1001025-42-8 CAPLUS

CN Phosphoramidic acid, N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:3) (CA INDEX NAME)



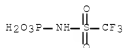
● 3 Li

IT 271249-92-4P

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation of Li salts as supporting electrolytes for Li secondary batteries by reacting (fluoroalkylsulfonyl)phosphoramidic acids with basic Li compds.)

RN 271249-92-4 CAPLUS

CN Phosphoramidic acid, N-[(trifluoromethyl)sulfonyl]- (CA INDEX NAME)



L139 ANSWER 4 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:910885 CAPLUS Full-text

DOCUMENT NUMBER: 147:238866

TITLE: Nonaqueous electrolyte lithium secondary batteries

INVENTOR(S): Matsuda, Hiroaki; Yoshizawa, Hiroshi

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007207455	A	20070816	JP 2006-21897	20060131

PRIORITY APPLN. INFO.:

JP 2006-21897

20060131

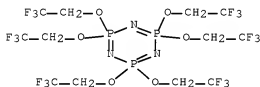
AB The battery includes anode, containing active materials alloying with Li, e.g. Si and/or Sn, catalyst elements for growing carbon nanofibers, and composite particles including carbon nanofibers grown on active material surfaces, and nonaq. electrolytes, containing ≥ 1 of phosphazenes and phosphoric acid esters. The batteries have excellent high-temperature storage stability.

IT 1065-05-0 155270-25-0

RL: MOA (Modifier or additive use); USES (Uses)
(anode active materials containing; nonaq. electrolyte lithium secondary batteries with anodes containing carbon nanofiber-grown active material particles and phosphazenes or phosphate esters)

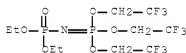
RN 1065-05-0 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,2,4,4,6,6-hexakis(2,2,2-trifluoroethoxy)- (CA INDEX NAME)



RN 155270-25-0 CAPLUS

CN Phosphorimidic acid, N-(diethoxyphosphinyl)-, tris(2,2,2-trifluoroethyl) ester (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate

RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte; nonaq. electrolyte lithium secondary batteries with anodes containing carbon nanofiber-grown active material particles and phosphazenes or phosphate esters)

RN 96-49-1 CAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 CAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



L139 ANSWER 5 OF 29 CAPLUS COPYRIGHT 2009 ACS ON STN
 ACCESSION NUMBER: 2007:817820 CAPLUS Full-text
 DOCUMENT NUMBER: 147:215659
 TITLE: Electrolyte containing phosphonic acid
 INVENTOR(S): Haering, Thomas
 PATENT ASSIGNEE(S): Between Lizenz G.m.b.H., Germany
 SOURCE: PCT Int. Appl., 9pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007082526	A2	20070726	WO 2007-DE133	20070123
WO 2007082526	A3	20080124		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA AU 2007207228 A1 20070726 AU 2007-207228 20070123 EP 1979972 A2 20080105 EP 2007-717975 20070123 R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR PRIORITY APPLN. INFO.: DE 2006-102006003316A 20060123 WO 2007-DE133 W 20070123				
AB	A method is disclosed for production of solns. of aminophosphonic acids and polymeric sulfonic acids in aprotic solvents. Membranes for membrane methodologies are produced from the solns. The membranes can also be doped with phosphoric acid.			
IT	2817-45-0P, Aminophosphonic acid RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (electrolyte containing phosphonic acid)			
RN	2817-45-0 CAPLUS			
CN	Phosphoramidic acid (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)			



L139 ANSWER 6 OF 29 CAPLUS COPYRIGHT 2009 ACS ON STN
 ACCESSION NUMBER: 2007:172276 CAPLUS Full-text

DOCUMENT NUMBER: 146:232758
 TITLE: Nonaqueous-electrolyte secondary battery having carbon fiber anodes and electrolyte containing phosphazenes
 INVENTOR(S): Otsuki, Masatomo; Toyosawa, Shinichi; Yoshikawa, Masato
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 19pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007042603	A	20070215	JP 2006-155956	20060605
PRIORITY APPLN. INFO.: OTHER SOURCE(S): MARPAT 146:232758			JP 2005-197232	A 20050706

AB The secondary battery comprises an anode of a three-dimension carbon fiber matrix supporting metal microparticles and a nonaq. electrolyte solution containing phosphazenes and supporting electrolyte salts. Safe nonaq.-electrolyte secondary batteries with good fire resistance are provided with this invention.

IT 96-49-1, Ethylene carbonate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte; nonaq. secondary batteries having carbon fiber anodes and fireproofing electrolytes containing phosphazenes)

RN 96-49-1 CAPLUS

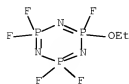
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



IT 33027-66-6
 RL: TEM (Technical or engineered material use); USES (Uses)
 (fireproofing agent, electrolyte containing; nonaq. secondary batteries having carbon fiber anodes and fireproofing electrolytes containing phosphazenes)

RN 33027-66-6 CAPLUS

CN 2λ5, 4λ5, 6λ5-1,3,5,2,4,6-Triazatriphosphorine,
 2-ethoxy-2,4,4,6,6-pentafluoro- (CA INDEX NAME)



ACCESSION NUMBER: 2006:977382 CAPLUS Full-text
 DOCUMENT NUMBER: 145:360086
 TITLE: Nonaqueous electrolytes for lithium ion
 batteries
 INVENTOR(S): Chen, Zonghai; Amine, Khalil
 PATENT ASSIGNEE(S): The University of Chicago, USA
 SOURCE: U.S. Pat. Appl. Publ., 20pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060210883	A1	20060921	US 2006-373054	20060310
WO 2006101779	A2	20060928	WO 2006-US8664	20060310
WO 2006101779	A3	20070322		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
 GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR,
 KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX,
 MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE,
 SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,
 VN, YU, ZA, ZM, ZW
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
 KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: US 2005-662056P P 20050315

OTHER SOURCE(S): MARPAT 145:360086

AB The present invention is generally related to electrolytes containing anion
 receptor additives to enhance the power capability of lithium-ion batteries.
 The anion receptor of the present invention is a Lewis acid that can help to
 dissolve LiF in the passivation films of lithium-ion batteries. Accordingly,
 one aspect the invention provides electrolytes comprising a lithium salt; a
 polar aprotic solvent; and an anion receptor additive; and wherein the
 electrolyte solution is substantially non-aqueous. Further there are provided
 electrochem. devices employing the electrolyte and methods of making the
 electrolyte.

IT 291-37-2D, Cyclotriphosphazene, diaryloxy compound
 908599-70-2 908599-71-3 908599-72-4
 910041-64-4D, aryloxy compound 910041-65-5D, diaryloxy
 compound

RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolytes for lithium ion batteries)

RN 291-37-2 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine (CA INDEX NAME)



RN 908599-70-2 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, diethenyltrifluoro-2,2,4,4,6,6-

hexahydromethoxy- (9CI) (CA INDEX NAME)



D1—O—Me

3 (D1—F)

2 [D1—CH=CH₂]

RN 908599-71-3 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, triethenyldifluoro-2,2,4,4,6,6-hexahydromethoxy- (9CI) (CA INDEX NAME)



D1—O—Me

2 (D1—F)

3 [D1—CH=CH₂]

RN 908599-72-4 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, ethenyltetrafluoro-2,2,4,4,6,6-hexahydromethoxy- (9CI) (CA INDEX NAME)



D1—O—Me

4 (D1—F)

D1—CH=CH₂

RN 910041-64-4 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, tetrafluoro-2,2,4,4,6,6-hexahydromethoxy-
(9CI) (CA INDEX NAME)

4 (D1—F)

D1—O—Me

RN 910041-65-5 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, trifluoro-2,2,4,4,6,6-hexahydromethoxy-
(9CI) (CA INDEX NAME)

3 (D1—F)

D1—O—Me

L139 ANSWER 8 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:918504 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 145:317962

TITLE: Novel redox shuttles for overcharge protection of
lithium batteries

INVENTOR(S): Amine, Khalil; Chen, Zonghai; Wang, Qingzheng

PATENT ASSIGNEE(S): The University of Chicago, USA
 SOURCE: U.S. Pat. Appl. Publ., 18pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060199080	A1	20060907	US 2006-366891	20060301
WO 2006094069	A2	20060908	WO 2006-US7297	20060301
WO 2006094069	A3	20070607		
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RM:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA			
GB 2437902	A	20071107	GB 2007-17003	20060301
JP 2008532248	T	20080814	JP 2007-558184	20060301
KR 2008012832	A	20080212	KR 2007-722140	20070928
CN 101160684	A	20080409	CN 2006-80012112	20071012
PRIORITY APPLN. INFO.:			US 2005-657850P	P 20050302
			WO 2006-US7297	W 20060301

OTHER SOURCE(S): MARPAT 145:317962

AB The present invention is generally related to electrolytes containing novel redox shuttles for overcharge protection of lithium-ion batteries. The redox shuttles are capable of thousands hours of overcharge tolerance and have a redox potential at about 3-5.5 V vs.Li and particularly about 4.4-4.8 V vs.Li and particularly about 4.4-4.8 V vs.Li. Accordingly, in one aspect the invention provides electrolytes comprising an alkali metal salt; a polar aprotic solvent; and a redox shuttle additive that is an aromatic compound having at least one aromatic ring with four or more electroneg. substituents, two or more oxygen atoms bonded to the aromatic ring, and no hydrogen atoms bonded to the aromatic ring; and wherein the electrolyte solution is substantially nonaq. Further there are provided electrochem. devices employing the electrolyte and methods of making the electrolyte.

IT 291-37-2D, Cyclotriphosphazene, diaryloxy derivative
 155599-91-4E, aryloxy derivs. 909599-70-2
 908599-71-3 908599-72-4

RL: MOA (Modifier or additive use); USES (Uses)
 (redox shuttles for overcharge protection of lithium batteries)

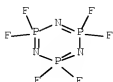
RN 291-37-2 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine (CA INDEX NAME)



RN 15599-91-4 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



RN 908599-70-2 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, diethenyltrifluoro-2,2,4,4,6,6-hexahydromethoxy- (9CI) (CA INDEX NAME)



D1—O—Me

3 (D1—F)

2 [D1—CH=CH2]

RN 908599-71-3 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, triethenyldifluoro-2,2,4,4,6,6-hexahydromethoxy- (9CI) (CA INDEX NAME)



D1—O—Me

2 (D1—F)

3 [D1—CH=CH2]

RN 908599-72-4 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, ethenyltetrafluoro-2,2,4,4,6,6-hexahydromethoxy- (9CI) (CA INDEX NAME)



D1—C—Me

4 (D1—F)

D1—CH=CH2

L139 ANSWER 9 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:657261 CAPLUS Full-text

DOCUMENT NUMBER: 145:127575

TITLE: Long life lithium batteries with stabilized electrodes

INVENTOR(S): Amine, Khalil; Liu, Jun; Visser, Donald R.; Lu, Wenquan

PATENT ASSIGNEE(S): The University of Chicago, USA

SOURCE: U.S. Pat. Appl. Publ., 21 pp., Cont.-in-part of U.S. Ser. No. 857,365.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 20060147809	A1	20060706	US 2006-338902	20060124
US 20050019670	A1	20050127	US 2004-857365	20040528
PRIORITY APPLN. INFO.:			US 2004-857365	A2 20040528
			US 2005-647361P	P 20050126
			US 2003-488063P	P 20030717

AB The present invention relates to non-aqueous electrolytes having electrode stabilizing additives, stabilized electrodes, and electrochem. devices containing the same. Thus the present invention provides electrolytes containing an alkali metal salt, a polar aprotic solvent, and an electrode stabilizing additive. In certain electrolytes, the alkali metal salt is a bis(chelato)borate and the additives include substituted or unsubstituted linear, branched or cyclic hydrocarbons comprising at least one oxygen atom and at least one aryl, alkenyl or alkynyl group. In other electrolytes, the additives include a substituted aryl compound or a substituted or unsubstituted heteroaryl compound wherein the additive comprises at least one oxygen atom. There are also provided methods of making the electrolytes and batteries employing the electrolytes. The invention also provides for electrode materials. Cathodes of the present invention may be further stabilized by surface coating the particles of the spinel or olivine with a material that can neutralize acid or otherwise lessen or prevent leaching of the manganese or iron ions. In some embodiments the coating is polymeric and

in other embodiments the coating is a metal oxide such as ZrO₂, TiO₂, ZnO, WO₃, Al₂O₃, MgO, SiO₂, SnO₂ AlPO₄, Al(OH)₃, a mixture of any two or more thereof.

IT 291-37-2D, Cyclotriphosphazene, Vinyl containing derivs.
 RL: MOA (Modifier or additive use); USES (Uses)
 (long life lithium batteries with stabilized electrodes)
 RN 291-37-2 CAPLUS
 CN 1,3,5,2,4,6-Triazatriphosphorine (CA INDEX NAME)



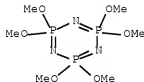
L139 ANSWER 10 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2006:608664 CAPLUS Full-text
 DOCUMENT NUMBER: 145:66393
 TITLE: Long life lithium batteries with stabilized electrodes
 INVENTOR(S): Amine, Khalil; Liu, Jun; Visser, Donald R.; Lu, Wenquan
 PATENT ASSIGNEE(S): The University of Chicago, USA
 SOURCE: PCT Int. Appl., 48 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006065605	A2	20060622	WO 2005-US44341	20051208
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
CA 2591529	A1	20060622	CA 2005-2591529	20051208
US 20060134527	A1	20060622	US 2005-297120	20051208
US 7507503	B2	20090324		
EP 1831951	A2	20070912	EP 2005-848844	20051208
R:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU			
JP 2008533650	T	20080821	JP 2007-546756	20051208
KR 2007091335	A	20070910	KR 2007-716299	20070716
PRIORITY APPLN. INFO.:			US 2004-636636P	P 20041216
			WO 2005-US44341	W 20051208
OTHER SOURCE(S):	MARPAT 145:66393			

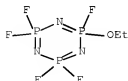
- AB The present invention relates to non-aqueous electrolytes having electrode stabilizing additives, stabilized electrodes, and electrochem. devices containing the same. Thus the present invention provides electrolytes containing an alkali metal salt, a polar aprotic solvent, and an electrode stabilizing additive. In some embodiments the additives include a substituted or unsubstituted cyclic or spirocyclic hydrocarbon containing at least one oxygen atom and at least one alkenyl or alkynyl group. When used in electrochem. devices with, e.g., lithium manganese oxide spinel electrodes or olivine or carbon-coated olivine electrodes, the new electrolytes provide batteries with improved calendar and cycle life.
- IT 291-37-2, Cyclotriphosphazene 957-13-1
33027-66-6 33027-68-8 471894-05-0
891826-09-4
RL: MOA (Modifier or additive use); USES (Uses)
(long life lithium batteries with stabilized electrodes)
- RN 291-37-2 CAPLUS
- CN 1,3,5,2,4,6-Triazatriphosphorine (CA INDEX NAME)



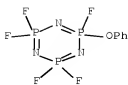
- RN 957-13-1 CAPLUS
- CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine
1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexamethoxy- (CA INDEX NAME)



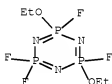
- RN 33027-66-6 CAPLUS
- CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2-ethoxy-2,4,4,6,6-pentafluoro- (CA INDEX NAME)



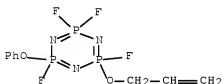
- RN 33027-68-8 CAPLUS
- CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,2,4,4,6-pentafluoro-6-phenoxy- (CA INDEX NAME)



RN 471894-05-0 CAPLUS

CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine,
2, 4-diethoxy-2, 4, 6, 6-tetrafluoro- (CA INDEX NAME)

RN 891828-09-4 CAPLUS

CN 1, 3, 5, 2, 4, 6-Triazatriphosphorine, 2, 2, 4, 6-tetrafluoro-2, 2, 4, 4, 6, 6-
hexahydro-4-phenoxy-6-(2-propenyloxy)- (9CI) (CA INDEX NAME)

L139 ANSWER 11 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:292307 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 144:353713

TITLE: Nonaqueous electrolyte secondary power
sources

INVENTOR(S): Kanno, Hiroshi; Otsuki, Masatomo

PATENT ASSIGNEE(S): Bridgestone Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006086355	A	20060330	JP 2004-269965	20040916
PRIORITY APPLN. INFO.:			JP 2004-269965	20040916

AB The power sources contain pos. electrodes containing porous C, neg. electrodes containing C materials which can adsorb and release Li ions, and nonaq. electrolytes containing Li ions. The electrolytes have critical O index of ≥ 19.5 volume%. The power sources have substantially reduced risk of ignition.

IT 96-49-1, Ethylene carbonate 21846-70-8
 33027-66-6 33027-68-8 55593-38-9
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary power sources)

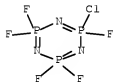
RN 96-49-1 CAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



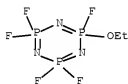
RN 21846-70-8 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2-chloro-2,4,4,6,6-pentafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



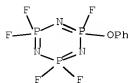
RN 33027-66-6 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine, 2-ethoxy-2,4,4,6,6-pentafluoro- (CA INDEX NAME)



RN 33027-68-8 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine, 2-ethoxy-2,4,4,6,6-pentafluoro-6-phenoxy- (CA INDEX NAME)



RN 55593-38-9 CAPLUS
 CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
 diethoxytetrafluoro- (CA INDEX NAME)



4 (D1—F)

2 (D1—O—Et)

L139 ANSWER 12 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:190194 CAPLUS Full-text
 DOCUMENT NUMBER: 144:257193
 TITLE: Nonaqueous electrolyte lithium batteries,
 their electrolyte solutions, and additives for
 increasing exothermic reaction-starting temperature of
 them
 INVENTOR(S): Otsuki, Masatomo
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006059681	A	20060302	JP 2004-240729	20040820
PRIORITY APPLN. INFO.:			JP 2004-240729	20040820
OTHER SOURCE(S):	MARPAT 144:257193			

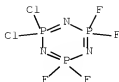
AB The additives comprise phosphazenes (NPX₂)_n (X = F, Cl; n = 3,4). Electrolyte solns. containing the additives, aprotic organic solvents, and supporting salts are also claimed. Nonaq. electrolyte lithium batteries equipped with the solns. show exothermic reaction-starting temperature ≥150°.

IT 11846-69-5P 11846-70-8P 16471-89-6P
 16471-90-9P

RL: DEV (Device component use); IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses) (electrolyte additives; cyclophosphazene additives for increasing exothermic reaction-starting temperature of nonaq. electrolyte solns. in lithium batteries)

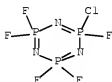
RN 11846-69-5 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2-dichloro-4,4,6,6-tetrafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



RN 21846-70-8 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2-chloro-2,4,4,6,6-pentafluoro-
2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



RN 26471-89-6 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, trichlorotrifluoro-2,2,4,4,6,6-hexahydro-
(8Cl, 9Cl) (CA INDEX NAME)



3 (D1—F)

3 (D1—Cl)

RN 26471-90-9 CAPLUS

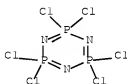
CN 1,3,5,2,4,6-Triazatriphosphorine, dichlorotetrafluoro-2,2,4,4,6,6-
hexahydro- (CA INDEX NAME)



4 (D1—F)

2 (D1—Cl)

IT 540-71-6, Hexachlorotriphosphazene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (in preparation of electrolyte additives; cyclophosphazene additives for
 increasing exothermic reaction-starting temperature of nonaq. electrolyte
 solns. in lithium batteries)
 RN 940-71-6 CAPLUS
 CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
 2,2,4,4,6,6-hexachloro- (CA INDEX NAME)



L139 ANSWER 13 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2006:167742 CAPLUS Full-text
 DOCUMENT NUMBER: 144:236257
 TITLE: Electrolyte solution additive for nonaqueous
 electrolyte battery, electrolyte solution,
 and the battery
 Otsuki, Masashi
 INVENTOR(S):
 PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
 SOURCE: PCT Int. Appl., 22 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006018989	A1	20060223	WO 2005-JP14407	20050805
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM JP 2006059682 A 20060302 JP 2004-240732 20040820				

PRIORITY APPLN. INFO.: JP 2004-240732 A 20040820
 AB The additive comprises a phosphazene compound: (NEX2)_n (X = F or Cl, but not
 all Xs are the same; and n = 3 or 4) with the number of Cl bonded to each P
 being 0 or 1. The electrolyte solution, contains the above additive, an
 aprotic organic solvent, and an electrolyte salt. The battery has a cathode,
 an anode, and the above electrolyte solution
 IT 21846-70-8 26471-90-9

RL: MOA (Modifier or additive use); USES (Uses)

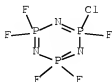
(electrolyte solution additives containing phosphazene compds. for

secondary

lithium batteries)

RN 21846-70-8 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2-chloro-2,4,4,6,6-pentafluoro-
2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



RN 26471-90-9 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, dichlorotetrafluoro-2,2,4,4,6,6-
hexahydro- (CA INDEX NAME)



4 (D1—F)

2 (D1—Cl)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L139 ANSWER 14 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:1176634 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 143:443523

TITLE: Secondary nonaqueous-electrolyte
batteries showing high charge/discharge
capacity and excellent Coulomb efficiency

INVENTOR(S): Kanno, Hiroshi; Otsuki, Masatomo

PATENT ASSIGNEE(S): Bridgestone Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

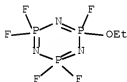
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005310479	A	20051104	JP 2004-124244	20040420
PRIORITY APPLN. INFO.:			JP 2004-124244	20040420
OTHER SOURCE(S):		MARPAT 143:443523		

AB The batteries employ amorphous carbon anodes and nonaq. electrolyte solvents containing phosphazene compds. and electrolyte salts. Preferably, the phosphazene compds. are expressed by open-chain (R1Y1)3P:NX [R1 = monovalent substituent, halo; Y1 = divalent connecting group, element, direct bond; X = substituents bearing ≥1 elements selected from C, Si, Ge, Sn, N, P, As, Sb, Bi, O, S, Se, Te, and Po] or cyclic (NPR22)n (R2 = monovalent substituent, halo; n = 3-15).

IT 33027-66-6
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (secondary nonaq.-electrolyte batteries containing amorphous carbon anodes and electrolyte solvents containing phosphazenes)

RN 33027-66-6 CAPLUS

CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine, 2-ethoxy-2, 4, 4, 6, 6-pentafluoro- (CA INDEX NAME)



L139 ANSWER 15 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:611359 CAPLUS Full-text
 DOCUMENT NUMBER: 143:136272
 TITLE: Nonaqueous electrolytic solution for battery with improved safety
 Otsuki, Masatomo; Ogino, Takao
 INVENTOR(S):
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005190873	A	20050714	JP 2003-432139	20031226
WO 2005064734	A1	20050714	WO 2004-JP19218	20041222
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1699105	A1	20060906	EP 2004-807575	20041222
R: DE, FR				

CN 1906796	A	20070131	CN 2004-80040997	20041222
US 20070172740	A1	20070726	US 2006-583412	20060620
PRIORITY APPLN. INFO.:			JP 2003-432031	A 20031226
			JP 2003-432139	A 20031226
			WO 2004-JP19218	W 20041222

OTHER SOURCE(S): MARPAT 143:136272

AB The solution contains aprotic organic solvents and supporting salts, wherein each solvent contains a P- and/or N-containing compound (e.g., phosphazene compound) satisfying $|T - t| \leq 25^\circ$ (T and t are b.p. of the solvent and the compound, resp.). The battery using the solution is also claimed. The P- and/or N-containing compound prevents the organic solvents from ignition.

IT 14700-00-6 15599-91-4 33027-66-6

33027-68-8 55593-37-8 55593-38-9

55593-39-0

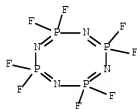
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(electrolyte containing aprotic organic solvents, P- and/or N-containing compds., and salts for polymer battery with improved safety)

RN 14700-00-6 CAPLUS

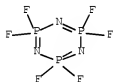
CN 2λ5,4λ5,6λ5,8λ5-1,3,5,7,2,4,6,8-

Tetrazatetraphosphocine, 2,2,4,4,6,6,8,8-octafluoro- (CA INDEX NAME)



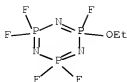
RN 15599-91-4 CAPLUS

CN 1,3,5,2,4,6-Triazatrichosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



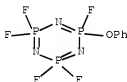
RN 33027-66-6 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatrichosphorine, 2-ethoxy-2,4,4,6,6-pentafluoro- (CA INDEX NAME)



RN 33027-68-8 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,2,4,4,6-pentafluoro-6-phenoxy- (CA INDEX NAME)



RN 55593-37-8 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
trifluorotrimethoxy- (CA INDEX NAME)



3 (D1— F)

3 (D1— O— Me)

RN 55593-38-9 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
diethoxytetrafluoro- (CA INDEX NAME)



4 (D1— F)

2 (D1— O— Et)

RN 55593-39-0 CAPLUS
 CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine,
 triethoxytrifluoro- (CA INDEX NAME)



3 (D1-F)

3 (D1-O-Et)

L139 ANSWER 16 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:609202 CAPLUS Full-text
 DOCUMENT NUMBER: 143:136266
 TITLE: Electrolyte for polymer battery with
 improved safety
 INVENTOR(S): Otsuki, Masami; Ogino, Takao
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005190869	A	20050714	JP 2003-432031	20031226
WO 2005064734	A1	20050714	WO 2004-JP19218	20041222
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1699105	A1	20060906	EP 2004-807575	20041222
R:	DE, FR			
CN 1906796	A	20070131	CN 2004-80040997	20041222
US 20070172740	A1	20070726	US 2006-583412	20060620
PRIORITY APPLN. INFO.:			JP 2003-432031	A 20031226
			JP 2003-432139	A 20031226
			WO 2004-JP19218	W 20041222
AB	The electrolyte contains aprotic organic solvents, polymers, and supporting salts, wherein each solvent contains a P- and/or N-containing compound			

satisfying $|T - t| \leq 25^\circ$ (T and t are b.p. of the solvent and the compound, resp.). The battery using the electrolyte is also claimed. The P- and/or N-containing compound prevents the organic solvents from ignition.

IT 14700-00-6 15599-91-4 33027-66-6

55593-37-8 55593-39-0

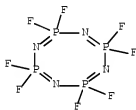
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(electrolyte containing aprotic organic solvents and P- and/or N-containing compds. for polymer battery with improved safety)

RN 14700-00-6 CAPLUS

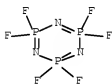
CN 2λ5, 4λ5, 6λ5, 8λ5-1, 3, 5, 7, 2, 4, 6, 8-

Tetrazatetraphosphocine, 2, 2, 4, 4, 6, 6, 8, 8-octafluoro- (CA INDEX NAME)



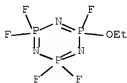
RN 15599-91-4 CAPLUS

CN 1, 3, 5, 2, 4, 6-Triazatraphosphorine, 2, 2, 4, 4, 6, 6-hexafluoro-2, 2, 4, 4, 6, 6-hexahydro- (CA INDEX NAME)



RN 33027-66-6 CAPLUS

CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatraphosphorine, 2-ethoxy-2, 4, 4, 6, 6-pentafluoro- (CA INDEX NAME)



RN 55593-37-8 CAPLUS

CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatraphosphorine, trifluorotrimethoxy- (CA INDEX NAME)



3 (D1—F)

3 (D1—O—Me)

RN 55593-39-0 CAPLUS
 CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
 triethoxytrifluoro- (CA INDEX NAME)



3 (D1—F)

3 (D1—O—Et)

L139 ANSWER 17 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:368511 CAPLUS Full-text
 DOCUMENT NUMBER: 142:433056
 TITLE: Secondary nonaqueous electrolyte
 battery
 INVENTOR(S): Koto, Tomoko
 PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005116306	A	20050428	JP 2003-348133	20031007
PRIORITY APPLN. INFO.:			JP 2003-348133	20031007

AB The battery has a cathode, containing a Li-Ni-Mn composite oxide : $\text{Li}_x\text{Ni}_y\text{Mn}_{2-y}\text{O}_4-\delta$ ($0 < x < 1.1$; $0.45 < y < 0.55$; and $0 \leq \delta < 0.4$) as a cathode active mass, an anode, and a nonaq. electrolyte solution; where the electrolyte solution contains 0.1-20 mass% phosphazene derivative

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate

RL: DEV (Device component use); USES (Uses)
 (cathodes containing lithium manganese nickel oxides and

electrolytes containing phosphazene derivs. for secondary lithium
batteries)

RN 96-49-1 CAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 CAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 CAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

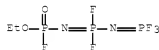


IT 850650-07-6

RL: MOA (Modifier or additive use); USES (Uses)
(cathodes containing lithium manganese nickel oxides and
electrolytes containing phosphazene derivs. for secondary lithium
batteries)

RN 850650-07-6 CAPLUS

CN Phosphoramidofluoridic acid, N-
[difluoro[(trifluorophosphoranylidene)amino]phosphoranylidene]-, ethyl
ester (CA INDEX NAME)



L139 ANSWER 18 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:347339 CAPLUS Full-text

DOCUMENT NUMBER: 142:414502

TITLE: Secondary nonaqueous electrolyte
battery

INVENTOR(S): Nishie, Katsushi

PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan

SOURCE: PCT Int. Appl., 36 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

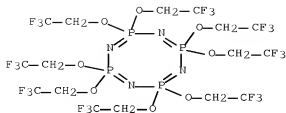
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005036690	A1	20050421	WO 2004-JP15097	20041006
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
CN 1871740	A	20061129	CN 2004-80029496	20041006
US 20070072084	A1	20070329	US 2006-574952	20060407
PRIORITY APPLN. INFO.:			JP 2003-348134	A 20031007
			WO 2004-JP15097	W 20041006
AB	The battery has an anode which contains a Si-containing material, a cathode, and a nonaq. electrolyte solution; where the electrolyte solution contains a phosphazene derivative			
IT	96-49-1, Ethylene carbonate 52627-24-4, Cobalt lithium oxide			
RL:	DEV (Device component use); USES (Uses) (anode having Si containing material and electrolyte solns. having phosphazene derivs. for secondary batteries)			
RN	96-49-1 CAPLUS			
CN	1,3-Dioxolan-2-one (CA INDEX NAME)			



RN 52627-24-4 CAPLUS
CN Cobalt lithium oxide (CA INDEX NAME)

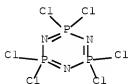
Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
Li	x	7439-93-2

IT 562-88-9 940-71-6 1065-05-0 15599-91-4
602299-82-1 607744-75-2 850424-61-2
850427-44-0 850427-45-1
RL: MOA (Modifier or additive use); USES (Uses)
(anode having Si containing material and electrolyte solns. having phosphazene derivs. for secondary batteries)
RN 562-88-9 CAPLUS
CN 1,3,5,7,2,4,6,8-Tetrazatetraphosphocine,
2,2,4,4,6,6,8,8-octahydro-2,2,4,4,6,6,8,8-octakis(2,2,2-trifluoroethoxy)-
(7CI, 8CI, 9CI) (CA INDEX NAME)



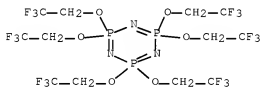
RN 940-71-6 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,2,4,4,6,6-hexachloro- (CA INDEX NAME)



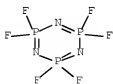
RN 1065-05-0 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,2,4,4,6,6-hexakis(2,2,2-trifluoroethoxy)- (CA INDEX NAME)



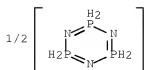
RN 15599-91-4 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



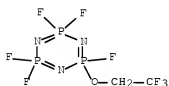
RN 602299-82-1 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, tetrafluoro-2,2,4,4,6,6-hexahydrobis(2,2,2-trifluoroethoxy)- (9CI) (CA INDEX NAME)



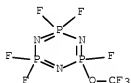
RN 607744-75-2 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,2,4,4,6-pentafluoro-6-(2,2,2-trifluoroethoxy)- (CA INDEX NAME)



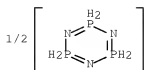
RN 850424-61-2 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6-pentafluoro-2,2,4,4,6,6-hexahydro-6-(trifluoromethoxy)- (9CI) (CA INDEX NAME)



RN 850427-44-0 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine,
tetrafluorohexahydrobis(trifluoromethoxy)- (9CI) (CA INDEX NAME)



2 (D1—F)

F₃C—O—D1

RN 850427-45-1 CAPLUS
 CN 1,3,5,2,4,6-Triazatriphosphorine, tetrafluorohexahydro(2,2,2-trifluoroethoxy)(trifluoromethoxy)- (9CI) (CA INDEX NAME)

F₃C—O—D1

4 (D1—F)

F₃C—CH₂—O—D1

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L139 ANSWER 19 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2004:589783 CAPLUS Full-text
 DOCUMENT NUMBER: 141:126373
 TITLE: Separator for nonaqueous electrolyte battery
 INVENTOR(S): Kanno, Hiroshi; Otsuki, Masashi; Eguchi, Shinichi
 PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
 SOURCE: PCT Int. Appl., 32 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004062002	A1	20040722	WO 2003-JP16360	20031219
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO,				

NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ,
 TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
 ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,
 TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
 AU 2003289453 A1 20040729 AU 2003-289453 20031219
 EP 1603175 A1 20051207 EP 2003-780936 20031219
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
 CN 1732580 A 20060208 CN 2003-80107738 20031219
 US 20060073381 A1 20060406 US 2005-540837 20050627
 PRIORITY APPLN. INFO.: JP 2002-380683 A 20021227
 WO 2003-JP16360 W 20031219

AB The separator, which is incombustible even when the inside of a battery has a
 high temperature and useful for a primary or secondary Li battery, comprises a
 micro-porous film formed by adding a phosphazene derivative and/or an isomer
 of a phosphazene derivative to a polymer.

IT 7439-93-2, Lithium, uses
 RL: DEV (Device component use); USES (Uses)
 (anode; separators containing phosphazene derivative added polymers
 for primary and secondary lithium batteries)

RN 7439-93-2 CAPLUS
 CN Lithium (CA INDEX NAME)

Li

IT 1313-13-9, Manganese dioxide, uses
 RL: DEV (Device component use); USES (Uses)
 (cathode; separators containing phosphazene derivative added polymers
 for primary and secondary lithium batteries)

RN 1313-13-9 CAPLUS
 CN Manganese oxide (MnO2) (CA INDEX NAME)

$\text{O}=\text{Mn}=\text{O}$

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
 957-13-1 1184-10-7 2397-48-0
 33027-68-8 722454-84-4 722454-86-6
 724792-59-0
 RL: DEV (Device component use); USES (Uses)
 (separators containing phosphazene derivative added polymers for primary
 and secondary lithium batteries)

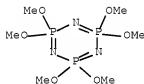
RN 96-49-1 CAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



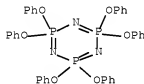
RN 105-58-8 CAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



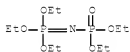
RN 957-13-1 CAPLUS
 CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine
 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexamethoxy- (CA INDEX NAME)



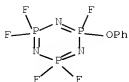
RN 1184-10-7 CAPLUS
 CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
 2,2,4,4,6,6-hexaphenoxy- (CA INDEX NAME)



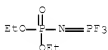
RN 2397-48-0 CAPLUS
 CN Phosphorimidic acid, (diethoxyphosphinyl)-, triethyl ester (9CI) (CA INDEX NAME)



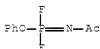
RN 33027-68-8 CAPLUS
 CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
 2,2,4,4,6-pentafluoro-6-phenoxy- (CA INDEX NAME)



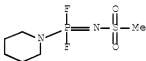
RN 722454-84-4 CAPLUS
 CN Phosphoramidic acid, (trifluorophosphoranylidene)-, diethyl ester (9CI)
 (CA INDEX NAME)



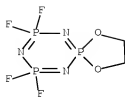
RN 722454-86-6 CAPLUS
 CN Phosphorodifluoridimide, acetyl-, phenyl ester (9CI) (CA INDEX NAME)



RN 724792-59-0 CAPLUS
 CN Phosphonimidic difluoride, N-(methylsulfonyl)-P-1-piperidinyl- (9CI) (CA INDEX NAME)



IT 724792-60-3
 RL: DEV (Device component use); USES (Uses)
 (separators containing phosphazene derivative added polymers for primary
 and secondary nonaq. electrolyte batteries)
 RN 724792-60-3 CAPLUS
 CN 5λ5, 7λ5, 9λ5-1,4-Dioxa-6,8,10-triaza-5,7,9-
 triphosphaspiro[4.5]decane, 7,7,9,9-tetrafluoro- (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L139 ANSWER 20 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2004:139816 CAPLUS Full-text
 DOCUMENT NUMBER: 140:184695
 TITLE: Secondary nonaqueous electrolyte battery
 INVENTOR(S): Narioka, Yoshinori; Mori, Sumio
 PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004055208	A	20040219	JP 2002-208280	20020717
PRIORITY APPLN. INFO.:			JP 2002-208280	20020717

AB The battery has an active mass containing anode and a Li salt dissolved nonaq. electrolyte solution; where the electrolyte solution has a halo-containing phosphazene compound and the anode has a binder comprising a non-halo material.

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 657348-91-9
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. having halo-containing phosphazene compds. for secondary lithium batteries)

RN 96-49-1 CAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)

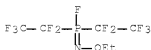


RN 105-58-8 CAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 657348-91-9 CAPLUS

CN Phosphinimidic fluoride, N-ethoxy-P,P-bis(pentafluoroethyl)- (9CI) (CA INDEX NAME)



L139 ANSWER 21 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:3212 CAPLUS Full-text

DOCUMENT NUMBER: 140:62300

TITLE: Supporting salt for battery, its manufacture, and the battery

INVENTOR(S): Otsuki, Masashi; Eguchi, Shinichi; Kanno, Hiroshi

PATENT ASSIGNEE(S): Bridgestone Corporation, Japan

SOURCE: PCT Int. Appl., 83 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004001882	A1	20031231	WO 2003-JP7352	20030610
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003242210	A1	20040106	AU 2003-242210	20030610
EP 1517387	A1	20050323	EP 2003-736121	20030610
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1669165	A	20050914	CN 2003-817186	20030610
CN 1300880	C	20070214		
US 20050164093	A1	20050728	US 2004-518634	20041220
PRIORITY APPLN. INFO.:			JP 2002-178693	A 20020619
			JP 2002-178772	A 20020619
			WO 2003-JP7352	W 20030610

OTHER SOURCE(S): MARPAT 140:62300

AB The salt comprises a phosphazene compound (NPA12)3 (I) or Al3P:NP(O)Al2 (II; Al = NRLi or F where ≥ 1 Al is NRLi and R = monovalent substituent) and I is manufactured by forming a phosphazene derivative by reacting a fluoro or chloro phosphazene derivative with a primary amine and adding Li alkoxide to form the compound and II is manufactured by forming a phosphazene derivative by reacting a chloro or fluoro phosphazene derivative with a primary amine and adding Li alkoxide to form the compound. The battery has a cathode, an anode, and a nonaq. electrolyte solution containing an aprotic organic solvent and

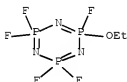
the above salt. Another type of the battery has an electrolyte containing a polymer and the above salt.

IT 33027-66-6 55593-38-9 134435-36-2
485399-26-6 593094-52-1 639065-14-8
639065-15-9 639067-35-3 639067-36-0
639067-37-1

RL: DEV (Device component use); USES (Uses)
(manufacture of supporting salts containing phosphazene derivs. for
battery electrolytes)

RN 33027-66-6 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2-ethoxy-2,4,4,6,6-pentafluoro- (CA INDEX NAME)



RN 55593-38-9 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
diethoxytetrafluoro- (CA INDEX NAME)

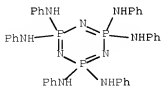


4 (D1—F)

2 (D1—O—Et)

RN 134435-36-2 CAPLUS

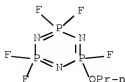
CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexahydro-2,2,4,4,6,6-
hexakis(phenylamino)-, hexalithium salt (9CI) (CA INDEX NAME)



●₆ Li

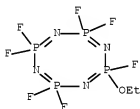
RN 485399-26-6 CAPLUS

CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine,
2, 2, 4, 4, 6-pentafluoro-6-propoxy- (CA INDEX NAME)



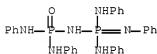
RN 593094-52-1 CAPLUS

CN 2λ5, 4λ5, 6λ5, 8λ5-1, 3, 5, 7, 2, 4, 6, 8-
Tetrazatetraphosphocine, 2-ethoxy-2, 4, 4, 6, 6, 8, 8-heptafluoro- (CA INDEX NAME)



RN 639065-14-8 CAPLUS

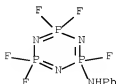
CN Iminoimidodiphosphoramide, N,N',N'',N''',N''''-pentaphenyl-, pentalithium
salt (9CI) (CA INDEX NAME)



●5 Li

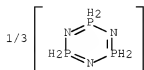
RN 639065-15-9 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorin-2-amine, 2,4,4,6,6-pentafluoro-N-phenyl-,
lithium salt (1:1) (CA INDEX NAME)



● Li

RN 639067-35-9 CAPLUS
 CN 1,3,5,2,4,6-Triazatriphosphorine, trifluoro-2,2,4,4,6,6-hexahydrotris(phenylamino)-, trilithium salt (9CI) (CA INDEX NAME)



D1-F

D1-NH-Ph

●₃ Li

RN 639067-36-0 CAPLUS
 CN Phosphinic amide, N-phosphoranylidene-, tetrafluoro phenylamino deriv., lithium salt (9CI) (CA INDEX NAME)

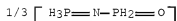


D1-NH-Ph

4 (D1-F)

● Li

RN 639067-37-1 CAPLUS
 CN Phosphinic amide, N-phosphoranylidene-, difluoro tris(phenylamino) deriv., trilithium salt (9CI) (CA INDEX NAME)



D1-NH-Ph

2/3 (D1-F)

●₃ Li

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L139 ANSWER 22 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:856175 CAPLUS Full-text

DOCUMENT NUMBER: 139:352680

TITLE: Positive electrode for
 nonaqueous electrolyte battery,
 process for producing the same and nonaqueous
 electrolyte battery

INVENTOR(S): Otsuki, Masashi; Eguchi, Shinichi; Kanno, Hiroshi

PATENT ASSIGNEE(S): Bridgestone Corporation, Japan

SOURCE: PCT Int. Appl., 74 pp.

CODEN: PIXXD2

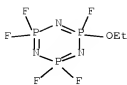
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003090295	A1	20031030	WO 2003-JP4038	20030328
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003236308	A1	20031103	AU 2003-236308	20030328
EP 1498965	A1	20050119	EP 2003-746887	20030328
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1647299	A	20050727	CN 2003-808623	20030328
US 20050153207	A1	20050714	US 2004-511034	20041013
US 7429433	B2	20080930		
PRIORITY APPLN. INFO.:			JP 2002-116990	A 20020419
			JP 2002-117151	A 20020419
			WO 2003-JP4038	W 20030328
AB	A pos. electrode for nonaq. electrolyte battery, comprising particles of a pos. electrode active substance and, dispersed therebetween, at least one alkaline earth metal oxide selected from the group consisting of magnesium oxide, calcium oxide and barium oxide. The electrode fabrication process includes steps of dispersing MnO ₂ particles in an aqueous solution of alkaline earth metal hydroxide, drying the dispersion, heating at 290-310° to convert the hydroxide to oxide, pulverizing the mixture and compacting the powder. Primary batteries having the said electrodes are also disclosed. The nonaq. electrolyte for the primary batteries preferably contains a phosphazene derivative. This pos. electrode enables enhancing the discharge capacity or charge-discharge capacity of nonaq. electrolyte battery immediately after production thereof and after storage at high temperature			
IT	33027-66-6 55593-38-9 593094-52-1 607744-75-2			
	RL: MOA (Modifier or additive use); USES (Uses) (additive for nonaq. electrolyte for primary batteries)			
RN	33027-66-6 CAPLUS			
CN	2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine, 2-ethoxy-2, 4, 4, 6, 6-pentafluoro- (CA INDEX NAME)			



RN 55593-38-9 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
diethoxytetrafluoro- (CA INDEX NAME)

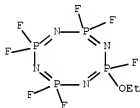


4 (D1—F)

2 (D1—O—Et)

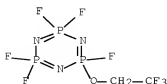
RN 593094-52-1 CAPLUS

CN 2λ5,4λ5,6λ5,8λ5-1,3,5,7,2,4,6,8-
Tetrazatetraphosphocine, 2-ethoxy-2,4,4,6,6,8,8-heptafluoro- (CA INDEX
NAME)



RN 607744-75-2 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,2,4,4,6-pentafluoro-6-(2,2,2-trifluoroethoxy)- (CA INDEX NAME)



IT 1313-13-9, Manganese dioxide, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (alkaline earth oxide additives for nonaq. electrolyte primary
 battery cathode active substance)
 RN 1313-13-9 CAPLUS
 CN Manganese oxide (MnO2) (CA INDEX NAME)

○=Mn=○

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L139 ANSWER 23 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2003:778146 CAPLUS Full-text
 DOCUMENT NUMBER: 139:294650
 TITLE: Positive electrode for
 nonaqueous electrolyte battery,
 process for producing the same and nonaqueous
 electrolyte battery
 INVENTOR(S): Otsuki, Masashi; Eguchi, Shinichi; Kanno, Hiroshi
 PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
 SOURCE: PCT Int. Appl., 65 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 3
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003081699	A1	20031002	WO 2003-JP1737	20030218
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2003249233	A	20030905	JP 2002-47991	20020225
JP 2003249213	A	20030905	JP 2002-48122	20020225
AU 2003211452	A1	20031008	AU 2003-211452	20030218
EP 1492181	A1	20041229	EP 2003-705293	20030218
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004006301	A	20040108	JP 2003-104299	20030408
US 20050106460	A1	20050519	US 2004-505422	20040824
US 20080164444	A1	20080710	US 2008-46164	20080311
PRIORITY APPLN. INFO.:			JP 2002-47991	A 20020225
			JP 2002-48122	A 20020225
			JP 2002-108024	A 20020410
			WO 2003-JP1737	W 20030218
			US 2004-505422	B3 20040824

OTHER SOURCE(S): MARPAT 139:294650

AB A pos. electrode of nonaq. electrolyte battery comprises active substance particles and, dispersed therebetween, at least one metal oxide selected from the group consisting of titanium dioxide, alumina, zinc oxide, chromium oxide, lithium oxide, nickel oxide, copper oxide and iron oxide. The disclosed batteries contain electrode active substance selected from MnO₂, LiCoO₂, LiNiO₂ and LiMn₂O₄, and the nonaq. electrolyte solution may contain phosphazene derivs. This pos. electrode enables enhancing the discharge capacity or charge-discharge capacity of nonaq. electrolyte battery.

IT 1313-13-9, Manganese dioxide, uses
 RL: DEV (Device component use); USES (Uses)
 (metal oxide additives for nonaq. battery
 anodes containing active substance)

RN 1313-13-9 CAPLUS

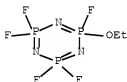
CN Manganese oxide (MnO₂) (CA INDEX NAME)



IT 33027-66-6 33027-67-7 55593-38-9
 593094-52-1 607744-75-2
 RL: MOA (Modifier or additive use); USES (Uses)
 (phosphazine derivative additives for nonaq. battery
 electrolytes)

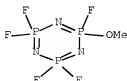
RN 33027-66-6 CAPLUS

CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine,
 2-ethoxy-2, 4, 4, 6, 6-pentafluoro- (CA INDEX NAME)



RN 33027-67-7 CAPLUS

CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine,
 2, 2, 4, 4, 6-pentafluoro-6-methoxy- (CA INDEX NAME)



RN 55593-38-9 CAPLUS

CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine,
 diethoxytetrafluoro- (CA INDEX NAME)

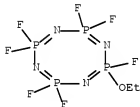


4 (D1—F)

2 (D1—O—Et)

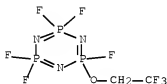
RN 593094-52-1 CAPLUS

CN 2λ5,4λ5,6λ5,8λ5-1,3,5,7,2,4,6,8-Tetrazatetraphosphocine, 2-ethoxy-2,4,4,6,6,8,8-heptafluoro- (CA INDEX NAME)



RN 607744-75-2 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6-pentafluoro-6-(2,2,2-trifluoroethoxy)- (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L139 ANSWER 24 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:694110 CAPLUS Full-text

DOCUMENT NUMBER: 139:232984

TITLE: Primary lithium battery

INVENTOR(S): Otsuki, Masatomo; Eguchi, Shinichi; Kanno, Hiroshi

PATENT ASSIGNEE(S): Bridgestone Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

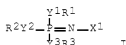
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

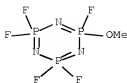
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003249233	A	20030905	JP 2002-47991	20020225
WO 2003081699	A1	20031002	WO 2003-JP1737	20030218
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003211452	A1	20031008	AU 2003-211452	20030218
EP 1492181	A1	20041229	EP 2003-705293	20030218
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1643715	A	20050720	CN 2003-806323	20030218
CN 1324738	C	20070704		
US 20050106460	A1	20050519	US 2004-505422	20040824
US 20080164444	A1	20080710	US 2008-46164	20080311
PRIORITY APPLN. INFO.:				
			JP 2002-47991	A 20020225
			JP 2002-48122	A 20020225
			JP 2002-108024	A 20020410
			WO 2003-JP1737	W 20030218
			US 2004-505422	B3 20040824

OTHER SOURCE(S): MARPAT 139:232984
GI



- AB The battery has a cathode containing TiO₂, Al₂O₃, ZnO, Cr oxide, Li₂O, NiO, CuO, and/or Fe oxide particles dispersed among MnO₂ particles; an anode; and an electrolyte solution of a supporting electrolyte in an aprotic solvent, containing a phosphazene derivative and/or a phosphazene derivative isomer. The phosphazene derivative is preferably I (R1-3 = monovalent substituents or halogen; X1 = substituents containing C, Si, Ge, Sn, N, P, As, Sb, Bi, O, , Se, Te, and/or Po; Y1, Y2 = bivalent connecting group, bivalent element, or a single bond) or (NPR42)n (R4 = monovalent substituent or halogen, n = 3-15); and the isomer is II or III (R7-9 = monovalent substituents or halogen; X2 = substituents containing C, Si, Ge, Sn, N, P, As, Sb, Bi, O, , Se, Te, and/or Po; Y7, Y8 = bivalent connecting group, bivalent element, or a single bond).
- IT 33027-67-7 55593-38-9 593094-52-i
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing phosphazene derivs. and isomers for primary lithium batteries)
RN 33027-67-7 CAPLUS
CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine,

2,2,4,4,6-pentafluoro-6-methoxy- (CA INDEX NAME)



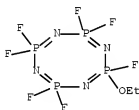
RN 55593-38-9 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
diethoxytetrafluoro- (CA INDEX NAME)

4 (D1—F)

2 (D1—O—Et)

RN 593094-52-1 CAPLUS

CN 2λ5,4λ5,6λ5,8λ5-1,3,5,7,2,4,6,8-
Tetrazatetraphosphocine, 2-ethoxy-2,4,4,6,6,8,8-heptafluoro- (CA INDEX
NAME)

L139 ANSWER 25 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:377216 CAPLUS Full-text

DOCUMENT NUMBER: 138:371761

TITLE: Primary nonaqueous electrolyte battery and
additive for the battery electrolyte

INVENTOR(S): Otsuki, Masashi; Eguchi, Shinichi; Kanno, Yushi

PATENT ASSIGNEE(S): Bridgestone Corporation, Japan

SOURCE: PCT Int. Appl., 101 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003041197	A1	20030515	WO 2002-JP11173	20021028
W: CA, JP, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
CA 2465845	A1	20030515	CA 2002-2465845	20021028
EP 1443578	A1	20040804	EP 2002-775406	20021028
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
US 20050123836	A1	20050609	US 2004-494936	20040507
PRIORITY APPLN. INFO.:				
			JP 2001-341464	A 20011107
			JP 2001-371305	A 20011205
			JP 2001-371356	A 20011205
			JP 2001-371378	A 20011205
			JP 2001-371499	A 20011205
			WO 2002-JP11173	W 20021028
OTHER SOURCE(S):		MARPAT 138:371761		
GI				

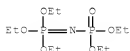


AB The battery uses a nonaq. electrolyte solution containing a supporting salt and a phosphazene derivative additive having viscosity ≤ 100 cP at 25°. The electrolyte solution may contain an aprotic solvent. The additive is preferably I (R1-3 = monovalent substituent or halogen, X1 = organic group containing C, Si, Ge, Sn, N, P, As, Sb, Bi, O, S, Se, Te, and/or Po), Y1-3 = linking group, bond, element or II (R4 = monovalent substituent or halogen, and may differ from each, n = 3-15).

IT 2397-48-0 28655-96-1,
Poly[nitrilo(difluorophosphoranylidene)] 28655-96-1D,
Poly[nitrilo(difluorophosphoranylidene)], alkyl alkoxy or Ph substituted, fluoro derivs. 97682-87-6 324575-25-3
524699-03-4
RL: MOA (Modifier or additive use); USES (Uses)
(phosphazene derivative additives in electrolytes for primary lithium batteries)

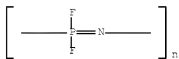
RN 2397-48-0 CAPLUS

CN Phosphorimidic acid, (diethoxyphosphinyl)-, triethyl ester (9CI) (CA INDEX NAME)



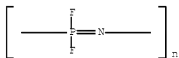
RN 28655-96-1 CAPLUS

CN Poly[nitrilo(difluorophosphoranylidene)] (9CI) (CA INDEX NAME)



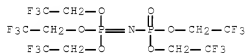
RN 28655-96-1 CAPLUS

CN Poly[nitrilo(difluorophosphoranylidene)] (9CI) (CA INDEX NAME)



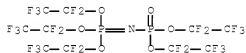
RN 97682-87-6 CAPLUS

CN Phosphorimidic acid, [bis(2,2,2-trifluoroethoxy)phosphinyl]-, tris(2,2,2-trifluoroethyl) ester (9CI) (CA INDEX NAME)



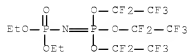
RN 324575-25-9 CAPLUS

CN Phosphorimidic acid, [bis(pentafluoroethoxy)phosphinyl]-, tris(pentafluoroethyl) ester (9CI) (CA INDEX NAME)



RN 524699-03-4 CAPLUS

CN Phosphorimidic acid, (diethoxyphosphinyl)-, tris(pentafluoroethyl) ester (9CI) (CA INDEX NAME)



REFERENCE COUNT:

3

THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L139 ANSWER 26 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2003:42601 CAPLUS Full-text
 DOCUMENT NUMBER: 138:92872
 TITLE: Polymer electrolyte and polymer electrolyte
 battery
 INVENTOR(S): Otsuki, Masashi; Endo, Shigeki; Ogino, Takao
 PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
 SOURCE: PCT Int. Appl., 33 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003005478	A1	20030116	WO 2002-JP6570	20020628
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2451790	A1	20030116	CA 2002-2451790	20020628
AU 2002313296	A1	20030121	AU 2002-313296	20020628
EP 1414096	A1	20040428	EP 2002-738860	20020628
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CN 1522477	A	20040818	CN 2002-813412	20020628
CN 100413140	C	20080820		
CN 1697243	A	20051116	CN 2005-10079713	20020628
CN 100377415	C	20080326		
US 20040192853	A1	20040930	US 2004-482804	20040105
PRIORITY APPLN. INFO.:			JP 2001-204415	A 20010705
			JP 2001-206763	A 20010706
			JP 2001-242051	A 20010809
			JP 2001-327618	A 20011025
			JP 2001-207705	A 20010709
			JP 2001-207706	A 20010709
			JP 2001-242067	A 20010809
			CN 2002-813411	A3 20020628
			WO 2002-JP6570	W 20020628

OTHER SOURCE(S): MARPAT 138:92872
 GI



AB The battery has a cathode, an anode, and an electrolyte mixture, containing a supporting electrolyte and a polymer containing a phosphazene derivative The

phosphazene derivative is I (R1-3 = halogen or monovalent substituents, X = C, Si, Ge, Sn, N,, As, Sb, Bi, O, S, Se, Te, Po or groups containing ≥ 1 of these elements, Y1-3 = bivalent connection groups or elements or a single bond) or II (R4 = halogen or monovalent substituent, n = 3-14).

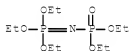
IT 2397-48-0 33027-66-6 471894-05-0
485399-26-6 485399-27-7

RL: DEV (Device component use); USES (Uses)

(polymer electrolytes containing supporting electrolytes and phosphazene derivs. for secondary lithium batteries)

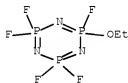
RN 2397-48-0 CAPLUS

CN Phosphorimidic acid, (diethoxyphosphinyl)-, triethyl ester (9CI) (CA INDEX NAME)



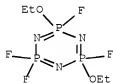
RN 33027-66-6 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2-ethoxy-2,4,4,6,6-pentafluoro- (CA INDEX NAME)



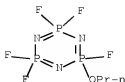
RN 471894-05-0 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,4-diethoxy-2,4,6,6-tetrafluoro- (CA INDEX NAME)

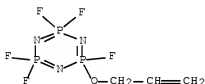


RN 485399-26-6 CAPLUS

CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
2,2,4,4,6-pentafluoro-6-propoxy- (CA INDEX NAME)



RN 485399-27-7 CAPLUS
 CN 2λ5,4λ5,6λ5-1,3,5,2,4,6-Triazatriphosphorine,
 2,2,4,4,6-pentafluoro-6-(2-propen-1-yloxy)- (CA INDEX NAME)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L139 ANSWER 27 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:193337 CAPLUS Full-text

DOCUMENT NUMBER: 136:234721

TITLE: Nonaqueous electrolyte secondary lithium
 battery containing phosphazene polymer
 electrolyte and lithium manganate cathode
 active mass

INVENTOR(S): Terashima, Hideki; Fukushima, Gen; Fui, Samu

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002075444	A	20020315	JP 2000-261276	20000830
PRIORITY APPLN. INFO.:			JP 2000-261276	20000830

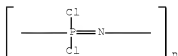
AB The battery has a cathode containing Li1+XMYMn2-X-YO4 (M = metal other than Li and Mn; X = 0-0.15; Y = 0-0.3) as an active material and a nonaq. electrolyte containing a phosphazene derivative $[\text{P}(\text{OR1})(\text{OR2})\text{:N}]_n$ [R1, R2 = (substituted) linear or branched alkyl, (substituted) saturated cyclic alkyl, (substituted) alkylene, alkylene oxide; n = 1-100]. The battery shows high capacity and energy d. under high temperature condition.

IT 26085-02-9D, Poly(dichlorophosphazene), (fluoro)alkyl group-containing
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)

(nonaq. electrolyte secondary lithium battery
 containing phosphazene polymer electrolyte and lithium manganate
 cathode active mass)

RN 26085-02-9 CAPLUS

CN Poly[nitrilo(dichlorophosphoranylidene)] (CA INDEX NAME)



L139 ANSWER 28 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2001:881968 CAPLUS Full-text

DOCUMENT NUMBER: 136:21960

TITLE: Nonaqueous electrolyte battery

INVENTOR(S): Kikuchi, Masahiro; Yonekawa, Fumihiro; Wakui, Atsushi; Kamata, Tomohisa

PATENT ASSIGNEE(S): Nippon Chemical Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001338683	A	20011207	JP 2000-157055	20000526

PRIORITY APPLN. INFO.:

JP 2000-157055

20000526

OTHER SOURCE(S): MARPAT 136:21960

AB The battery has a Li intercalating spinel type Li Mn oxide cathode, a Li intercalating anode, and nonaq. Li ion electrolyte solution containing a Mn dissoln. inhibitor, which is a phosphazene derivative selected from (R0)3P:NSO3R1 (R and R1 = monovalent organic group) and (R2O)3P:NSO2N:P(OR3)3 (R2 and R3 = monovalent organic group).

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate

RL: DEV (Device component use); USES (Uses)

(electrolyte solns. containing phosphazene derivs. for preventing manganese dissoln. from cathodes in secondary lithium batteries

RN 96-49-1 CAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 CAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



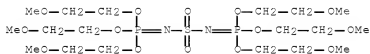
IT 271771-14-3 271771-15-4

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte solns. containing phosphazene derivs. for preventing manganese dissoln. from cathodes in secondary lithium batteries)

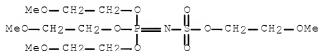
RN 271771-14-3 CAPLUS

CN Phosphorimidic acid, sulfonylbis-, hexakis(2-methoxyethyl) ester (9CI)
(CA INDEX NAME)



RN 271771-15-4 CAPLUS

CN Sulfamic acid, N-[tris(2-methoxyethoxy)phosphinylidene]-, 2-methoxyethyl ester (CA INDEX NAME)



L139 ANSWER 29 OF 29 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:49109 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 132:110582

TITLE: Nonaqueous secondary batteries

INVENTOR(S): Tomiyama, Hideki

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000021449	A	20000121	JP 1998-186328	19980701
JP 4003298	B2	20071107		

PRIORITY APPLN. INFO.: JP 1998-186328 19980701

AB The batteries comprise a Li-containing transition metal oxide cathode, a Li-intercalating Si-containing anode, and a electrolyte gel containing (a) organic polymer, (b) non-protonic solvent, and (c) ammonium, alkali metal, or alkaline earth metal salt. The batteries have excellent charge-discharge cycle characteristics.

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate

RL: DEV (Device component use); USES (Uses)

(electrolyte solvent; lithium secondary batteries with polymer gel electrolytes)

RN 96-49-1 CAPLUS

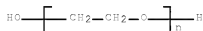
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



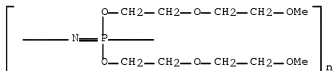
RN 108-32-7 CAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



IT 25322-68-3 98973-15-0 255897-46-2
 RL: DEV (Device component use); USES (Uses)
 (lithium secondary batteries with polymer gel electrolytes)
 RN 25322-68-3 CAPLUS
 CN Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- (CA INDEX NAME)

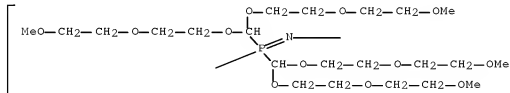


RN 98973-15-0 CAPLUS
 CN Poly[nitrilo[bis[2-(2-methoxyethoxy)ethoxy]phosphoranylidene]] (CA INDEX NAME)



RN 255897-46-2 CAPLUS
 CN Poly[nitrilo[bis[bis[2-(2-methoxyethoxy)ethoxy]methyl]phosphoranylidene]] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



SEARCH OF CLAIM 7

=> fil reg; d stat que 153; d stat que 159
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 DICTIONARY FILE UPDATES: 27 MAR 2009 HIGHEST RN 1128305-29-2

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 experimental property data in the original document. For information
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L5 STR

NODE ATTRIBUTES:

NSPEC IS RC AT 1
 NSPEC IS RC AT 2
 DEFAULT MLEVEL IS ATOM
 DEFAULT ELEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 2

STEREO ATTRIBUTES: NONE

L7 109078 SEA FILE=REGISTRY SSS FUL L5
 L44 730 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND LI/ELS
 L45 STR



G1 11

VAR G1=1/8
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE
 L47 10744 SEA FILE=REGISTRY SUB=L7 SSS FUL L45
 L48 98 SEA FILE=REGISTRY SPE=ON ABB=ON L47 AND L44
 L53 18 SEA FILE=REGISTRY SPE=ON ABB=ON L48 AND F/ELS

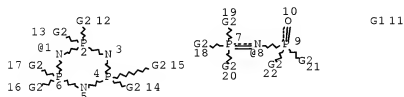
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NODE ATTRIBUTES:
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 NUMBER OF NODES IS 2

STEREO ATTRIBUTES: NONE
 L7 109078 SEA FILE=REGISTRY SSS FUL L5
 L44 730 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND LI/ELS
 L56 STR



VAR G1=1/8
 VAR G2=N/F
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 22

STEREO ATTRIBUTES: NONE
 L58 830 SEA FILE=REGISTRY SUB=L7 SSS FUL L56
 L59 21 SEA FILE=REGISTRY SPE=ON ABB=ON L58 AND L44

=> fil capl; d que nos l54; d que nos l60; d que nos l64; d que nos l129
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 FILE LAST UPDATED: 27 Mar 2009 (20090327/ED)

Caplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2008.

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'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

L5 STR
 L7 109078 SEA FILE=REGISTRY SSS FUL L5
 L44 730 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND LI/ELS
 L45 STR
 L47 10744 SEA FILE=REGISTRY SUB=L7 SSS FUL L45
 L48 98 SEA FILE=REGISTRY SPE=ON ABB=ON L47 AND L44
 L53 18 SEA FILE=REGISTRY SPE=ON ABB=ON L48 AND F/ELS
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7439-93-2/BI OR 96-49-1/BI)
 STR
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 L8 74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
 L9 780 SEA FILE=CAPLUS SPE=ON ABB=ON L8 (L) TEM/RL
 L10 323 SEA FILE=CAPLUS SPE=ON ABB=ON L8 (L) DEV/RL
 L11 144202 SEA FILE=CAPLUS SPE=ON ABB=ON BATTER?/OBI
 L14 16353 SEA FILE=CAPLUS SPE=ON ABB=ON APROTIC?/BI
 L17 186137 SEA FILE=CAPLUS SPE=ON ABB=ON SUPPORT?/OBI
 L22 8 SEA FILE=REGISTRY SPE=ON ABB=ON L2 NOT L7
 L23 250787 SEA FILE=CAPLUS SPE=ON ABB=ON L22
 L25 77091 SEA FILE=CAPLUS SPE=ON ABB=ON ANODE#/OBI
 L26 108158 SEA FILE=CAPLUS SPE=ON ABB=ON CATHODE#/OBI
 L27 346576 SEA FILE=CAPLUS SPE=ON ABB=ON ELECTRODE#/OBI
 L28 6060 SEA FILE=CAPLUS SPE=ON ABB=ON L27 (L) POS?/OBI
 L29 6316 SEA FILE=CAPLUS SPE=ON ABB=ON L27 (L) NEG?/OBI
 L32 87563 SEA FILE=CAPLUS SPE=ON ABB=ON FUEL CELL#/OBI
 L38 30050 SEA FILE=CAPLUS SPE=ON ABB=ON NONAQ?/OBI OR NON/OBI (W) AQUEOUS
 /OBI
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 L45 STR
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 L25 OR L26 OR L28 OR L29 OR L14 OR L9 OR L10 OR L17)
 L52 3 SEA FILE=CAPLUS SPE=ON ABB=ON L23 AND L49
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 L64 2 SEA FILE=CAPLUS SPE=ON ABB=ON L49 AND L63 AND (L51 OR L52)

L5 STR
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 L44 730 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND LI/ELS
 L45 STR
 L47 10744 SEA FILE=REGISTRY SUB=L7 SSS FUL L45
 L48 98 SEA FILE=REGISTRY SPE=ON ABB=ON L47 AND L44
 L49 55 SEA FILE=CAPLUS SPE=ON ABB=ON L48
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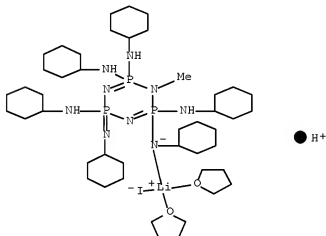
=> s 154,160,164 not 1139

L140 17 (L54 OR L60 OR L64) NOT L139 L139 WAS PREVIOUSLY PRINTED

=> d ibib abs hitind hitstr 1140 1-17

L140 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2007:1048715 CAPLUS Full-text
 DOCUMENT NUMBER: 147:522398
 TITLE: Zwitterionic phosphazanium phosphazenate ligands
 AUTHOR(S): Benson, Mark A.; Ledger, Joanne; Steiner, Alexander
 CORPORATE SOURCE: Department of Chemistry, University of Liverpool,
 Liverpool, L69 7ZD, UK
 SOURCE: Chemical Communications (Cambridge, United Kingdom)
 (2007), (37), 3823-3825
 CODEN: CHCOFS; ISSN: 1359-7345
 PUBLISHER: Royal Society of Chemistry
 DOCUMENT TYPE: Journal

LANGUAGE: English
 OTHER SOURCE(S): CASREACT 147:522398
 AB Zwitterionic ligands are readily prepared from phosphazenes (RNH)6P3N3 by successive alkylation of ring nitrogen sites and deprotonation of exocyclic NH sites. The crystal structure of deprotonation products were determined
 CC 29-14 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 75
 IT 956597-16-3P 956597-17-4P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (crystal structure; preparation and structural characterization of zwitterionic phosphazenium phosphazenate ligands)
 IT 956597-17-4P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (crystal structure; preparation and structural characterization of zwitterionic phosphazenium phosphazenate ligands)
 RN 956597-17-4 CAPLUS
 CN Lithate(1-), iodo[N2,N2',N4,N4',N6-pentacyclohexyl-6-(cyclohexylimino)-3,6-dihydro-3-methyl-2λ5,4λ5,6λ5-1,3,5,2,4,6-triazatriphosphorine-2,2,4,4,6-pentaminato-κN2]bis(tetrahydrofuran)-, hydrogen (1:1), (T-4)- (CA INDEX NAME)



REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L140 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:109669 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 145:359910

TITLE: Inorganic polymer phosphazene disulfide as cathode material for rechargeable lithium batteries

AUTHOR(S): Xu, Guo-Xiang; Lu, Qi; Yu, Bi-Tao; Wen, Lei
 CORPORATE SOURCE: Department of Applied Chemistry, College of Chemistry and Molecular Engineering, Peking University, Beijing, 100871, Peop. Rep. China

SOURCE: Solid State Ionics (2006), 177(3-4), 305-309

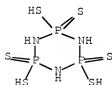
CODEN: SSIOD3; ISSN: 0167-2738

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

- AB The inorg. network polymer, phosphazene disulfide, [(NPS₂)₃]_n, was synthesized by a solution crosslinking method. IR and element anal. confirmed the polymer's mol. structure. The polymer has an average particle size of d_{0.5} = 7.7 μm and the sp. surface area is 57.4 m²/g. TG/DTA anal. showed a decomposition reaction from 200 to 300°. Used as cathode material in Li batteries, it had an initial discharge capacity of 459.1 mA-h/g, which is almost 93.5% of the theor. sp. capacity (490.9 mA-h/g). After 30 charge-discharge cycles, the discharge capacity of [(NPS₂)₃]_n stabilized at .apprx.400.1 mA-h/g, a good cycling ability. [(NPS₂)₃]_n has potential as cathode material for secondary Li batteries.
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72
- ST phosphazene disulfide polymer cathode lithium battery
- IT Secondary batteries
(lithium; phosphazene disulfide polymer cathode material for lithium batteries)
- IT Battery cathodes
(phosphazene disulfide polymer cathode material for lithium batteries)
- IT 940-71-6 22868-13-9, Sodium sulfide (Na₂S₂)
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of phosphazene disulfide polymer cathode material for lithium batteries)
- IT 910309-85-2
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(phosphazene disulfide polymer cathode material for lithium batteries)
- IT 910309-78-3P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(phosphazene disulfide polymer cathode material for lithium batteries)
- IT 910309-85-2
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(phosphazene disulfide polymer cathode material for lithium batteries)
- RN 910309-85-2 CAPLUS
- CN 1,3,5,2,4,6-Triazatriphosphorine, 1,2,3,4-tetrahydro-2,4,6,6-tetramercapto-, 2,4-disulfide, lithium salt (1:6) (CA INDEX NAME)



● Li

- IT 910309-78-3P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(phosphazene disulfide polymer cathode material for lithium batteries)

RN 910309-78-3 CAPLUS
 CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexachloro-2,2,4,4,6,6-hexahydro-, polymer with sodium sulfide (Na₂(S₂)) (9CI) (CA INDEX NAME)

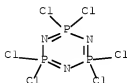
CM 1

CRN 22868-13-9
 CMF Na₂ S₂



CM 2

CRN 940-71-6
 CMF Cl₆ N₃ P₃



REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L140 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2003:415856 CAPLUS Full-text

DOCUMENT NUMBER: 139:344724

TITLE: In situ complexation of lithium chloride by amphiprotic cyclophosphazenes

AUTHOR(S): Richards, Philip I.; Benson, Mark A.; Steiner, Alexander

CORPORATE SOURCE: Department of Chemistry, University of Liverpool, Liverpool, L69 7ZD, UK

SOURCE: Chemical Communications (Cambridge, United Kingdom) (2003), (12), 1392-1393
 CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The amphiprotic cyclophosphazene (CH₃O(CH₂)₃NH)₆P₃N₃ (1) incorporates LiCl via successive protonation with HCl and deprotonation with BuLi (or vice versa) to generate the coordination polymer 1·2LiCl, a mol. model compound for Li ion containing solid polymer electrolytes.

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 75

IT 615553-33-8P 615553-34-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal structure of)

IT 615553-32-7P 615553-35-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

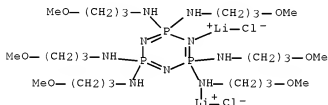
(Reactant or reagent)

(preparation and reactant for preparation of lithium
hexakis(methoxyethylamino)cyclophosphazene chloro complex)

IT 615553-34-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

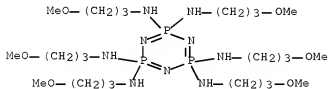
RN 615553-34-9 CAPLUS

CN Lithium, dichloro[μ-[2,2,4,4,6,6-hexahydro-2-[(3-methoxypropyl)amino-
κN]-2,4,4,6,6-pentakis[(3-methoxypropyl)amino]-1,3,5,2,4,6-
triazatriphosphorine-κN1]]di- (9CI) (CA INDEX NAME)

IT 615553-35-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)(preparation and reactant for preparation of lithium
hexakis(methoxyethylamino)cyclophosphazene chloro complex)

RN 615553-35-0 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexahydro-2,2,4,4,6,6-
hexakis[(3-methoxypropyl)amino]-, dilithium salt (9CI) (CA INDEX NAME)

● 2 Li

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L140 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2003:47848 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 138:401898

TITLE: Syntheses and structures of trillithium
cyclotriphosphazenes equipped with 2-halo-aryl
substituents

AUTHOR(S): Rivals, Frederic; Steiner, Alexander

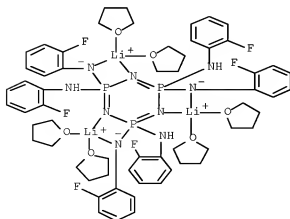
CORPORATE SOURCE: Department of Chemistry, University of Liverpool,
Liverpool, UKSOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie
(2003), 629(1), 139-146

PUBLISHER: CODEN: ZAACAB; ISSN: 0044-2313
 DOCUMENT TYPE: Wiley-VCH Verlag GmbH & Co. KGaA
 LANGUAGE: Journal
 OTHER SOURCE(S): English
 CASREACT 138:401898

- AB Hexakis(2-halo-anilino)cyclotriphosphazenes 2,2,4,4,6,6-(2-X-C₆H₄NH)6P₃N₃ {X = F (1d), Cl (1e), Br (1f)} were prepared by refluxing mixts. of hexachlorocyclotriphosphazene, 2-haloaniline and triethylamine in toluene and characterized by single crystal x-ray diffraction. Reaction of 1d-f with three equiv of nBuLi yields lithium complexes of trianionic phosphazenes [(thf)2Li]3{(2-X-C₆H₄N)3(2-X-C₆H₄NH)3P₃N_{3}} {X = F (2d), Cl (2e) and Br (2f)}. Compds. 2d, 2e and 2f were structurally characterized by x-ray diffraction, which reveals monomeric cis-metalated phosphazenes featuring central P₃N₃ ring systems of chair conformation. Lithium ions reside in three N(eq)-P-N(endo) chelation sites at one face of the P₃N₃ ring system. Li...X distances are rather long (> 3 Å) indicating no Li-X interactions.}
- CC 29-14 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 28, 75, 78
- IT 531511-55-4P 531511-81-6P 531512-07-9P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (crystal structure; preparation of hexakis(haloarylamino) cyclotriphosphazenes and their lithium complexes)
- IT 530156-73-1P 530156-74-2P 530156-75-3P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (mol. structure; preparation of hexakis(haloarylamino) cyclotriphosphazenes and their lithium complexes)
- IT 531511-55-4P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (crystal structure; preparation of hexakis(haloarylamino) cyclotriphosphazenes and their lithium complexes)
- RN 531511-55-4 CAPUS
- CN Lithium, hexakis(tetrahydrofuran) [μ₃-(rel-(2R,4R,6R)-2,4,6-tris[(2-fluorophenyl)amino]-κN)-2,4,6-tris[(2-fluorophenyl)amino]-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato(3-)-κN1:κN3:κN5)]tri-, compd. with hexane (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 530156-73-1
 CMF C60 H75 F6 Li3 N9 O6 P3
 CCI CCS



CM 2

CRN 110-54-3

CMF C6 H14

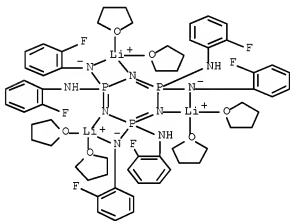
Me—(CH₂)₄—Me

IT 530156-73-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (mol. structure; preparation of hexakis(haloarylamino) cyclotriphosphazenes
 and their lithium complexes)

RN 530156-73-1 CAPLUS

CN Lithium, hexakis(tetrahydrofuran) [μ₃-[rel-(2R,4R,6R)-2,4,6-tris[(2-fluorophenyl)amino-κN]-2,4,6-tris[(2-fluorophenyl)amino]-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato(3-)-κN1:κN3:κN5]]tri- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L140 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:241431 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 137:172293

TITLE: Recent advances in lithium-ion and lithium-polymer batteries

AUTHOR(S): Venkatasetty, H. V.; Jeong, Y. U.

CORPORATE SOURCE: H. V. Setty Enterprises Inc., Burnsville, MN, USA

SOURCE: Annual Battery Conference on Applications and Advances, 17th, Long Beach, CA, United States, Jan. 15-18, 2002 (2002), 173-178. Editor(s): Das, Radhe S. L.; Frank, Harvey. Institute of Electrical and Electronics Engineers: New York, N. Y.

CODEN: 69CKHG; ISBN: 0-7803-7132-1

DOCUMENT TYPE: Conference

LANGUAGE: English

- AB Synthesis of new Li salts and copolymers and the properties of solid polymer electrolyte films (SPE) are described. Novel electrolytes and electrode materials were developed to improve the capacity, energy d., cycle life, and the performance of Li batteries while enhancing safety. These batteries have the potential to meet the needs of medical devices and other portable electronic devices. Improved cathode materials are being developed and composite anodes are being prepared and evaluated. With respect to electrolytes, new materials with high conductivity and electrochem. stability to reduce the size and weight of the batteries are studied. The performance characteristics of prototype cells with SPE films as well as solns. of super acid-based Li salts are presented and discussed in terms of their structure and properties.
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 72
- ST lithium imide salt rechargeable battery polymer electrolyte film cond
- IT Secondary batteries
(lithium; recent advances in lithium-ion and lithium-polymer batteries)
- IT Battery anodes
Battery cathodes
Battery electrolytes
Ionic conductivity
Polymer electrolytes
X-ray diffraction
(recent advances in lithium-ion and lithium-polymer batteries)
- IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(recent advances in lithium-ion and lithium-polymer batteries)
- IT Macromonomers
RL: RCT (Reactant); RACT (Reactant or reagent)
(recent advances in lithium-ion and lithium-polymer batteries)
- IT Polyoxyalkylenes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(recent advances in lithium-ion and lithium-polymer batteries)
- IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(MCMB, anode; recent advances in lithium-ion and lithium-polymer batteries)
- IT 2699-79-8D, Sulfonyl fluoride, perfluoroalkyl
RL: NUU (Other use, unclassified); USES (Uses)
(Perfluoroalkyl; recent advances in lithium-ion and lithium-polymer batteries)
- IT 12057-17-9, Lithium manganese oxide (LiMn2O4) 132843-44-8
RL: DEV (Device component use); USES (Uses)
(recent advances in lithium-ion and lithium-polymer batteries)
- IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(recent advances in lithium-ion and lithium-polymer batteries)
- IT 9003-07-0P, Celgard 2300
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

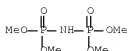
- (recent advances in lithium-ion and lithium-polymer batteries
)
- IT 13463-67-7, Titanium oxide (TiO₂), uses 24937-79-9, Polyvinylidene fluoride
 RL: MOA (Modifier or additive use); USES (Uses)
 (recent advances in lithium-ion and lithium-polymer batteries
)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
 600-00-0, Ethyl 2-bromo isobutyrate 616-38-6, Dimethylcarbonate
 7440-50-8, Copper, uses 63310-83-8, Dicopper dibromide
 RL: NUU (Other use, unclassified); USES (Uses)
 (recent advances in lithium-ion and lithium-polymer batteries
)
- IT 189217-56-9 210227-37-5 338746-29-5 338746-30-8 447448-05-7
 447448-06-8 447448-07-9 447448-08-0 447448-09-1 447448-10-4
 447448-11-5 447448-12-6 447448-13-7 447448-14-8
 447448-15-9
 RL: PRP (Properties)
 (recent advances in lithium-ion and lithium-polymer batteries
)
- IT 176719-70-3P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (recent advances in lithium-ion and lithium-polymer batteries
)
- IT 109-72-8, n-Butyllithium, reactions 375-72-4, Perfluorobutylsulfonyl fluoride 7664-41-7, Ammonia, reactions 25322-68-3, Polyethylene oxide 37275-48-2, Dipyridyl 87105-87-1, Poly(ethylene glycol) methyl ether methacrylate homopolymer
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (recent advances in lithium-ion and lithium-polymer batteries
)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
 RL: NUU (Other use, unclassified); USES (Uses)
 (recent advances in lithium-ion and lithium-polymer batteries
)
- RN 96-49-1 CAPLUS
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



- RN 105-58-8 CAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)

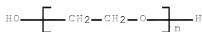


- IT 447448-14-8
 RL: PRP (Properties)
 (recent advances in lithium-ion and lithium-polymer batteries
)
- RN 447448-14-8 CAPLUS
 CN Imidodiphosphoric acid, tetramethyl ester, lithium salt (9CI) (CA INDEX NAME)



● Li

IT 25322-68-3, Polyethylene oxide
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (recent advances in lithium-ion and lithium-polymer batteries)
 RN 25322-68-3 CAPLUS
 CN Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L140 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2000:894147 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 134:231498

TITLE: Synthesis and antitumor activity of
 cyclotriphosphazene-(diamine)platinum(II) conjugates
 AUTHOR(S): Baek, Hyunggee; Cho, Yanga; Lee, Chong Ok; Sohn, Youn Soo

CORPORATE SOURCE: Inorganic Chemistry Laboratory, Korea Institute of
 Science and Technology, Seoul, 130-650, S. Korea

SOURCE: Anti-Cancer Drugs (2000), 11(9), 715-725

CODEN: ANTDEV; ISSN: 0959-4973

PUBLISHER: Lippincott Williams & Wilkins

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:231498

AB A new class of water-soluble cyclotriphosphazene-(diamine)platinum(II) conjugate drugs [NP(Am·Li₂)(Am·PtA₂)]₃ (Am: dicarboxylic amino acid; A₂: diamine) has been synthesized and characterized by elemental anal., multinuclear (1H, 31P, 13C, 195Pt) NMR and IR spectroscopies. All the title compds. were subjected to both in vitro and in vivo assays against the murine leukemia L 1210 cell line and selected human tumor cells. Most of the title compds. have shown higher in vivo antitumor activity than cisplatin and carboplatin, and, in particular, [NP(L-Glu·Li₂)(L-Glu·Pt(-dach))₃] (Glu=glutamate, dach=trans(±)-1,2-diaminocyclohexane) showed extraordinary high activity (ILS>500%) equally against both parent and cisplatin-resistant leukemia L 1210 cell lines. Furthermore, this candidate compound (KI 60606) exhibited a wider spectrum of in vitro activity by showing higher cytotoxicity against all the selected human tumor cells than cisplatin and, therefore, was subjected to preclin. studies which are now near completion.

CC 1-3 (Pharmacology)

Section cross-reference(s): 63, 78

IT 297735-33-2P 330163-62-7P 330163-63-8P

330163-64-9P 330163-65-0P 330163-66-1P
330163-67-2P 330163-68-3P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(synthesis and antitumor activity of
cyclotriphosphazene-(diamine)platinum conjugates)

IT 940-71-6, Hexachlorocyclotriphosphazene 23858-10-8 72968-08-2
104418-73-7 121958-12-1 297735-46-7 297735-51-4
297735-55-8 329912-00-7

RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis and antitumor activity of
cyclotriphosphazene-(diamine)platinum conjugates)

IT 297735-33-2P 330163-62-7P 330163-63-8P
330163-64-9P 330163-65-0P 330163-66-1P
330163-67-2P 330163-68-3P

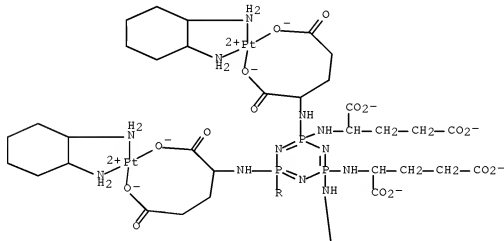
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(synthesis and antitumor activity of
cyclotriphosphazene-(diamine)platinum conjugates)

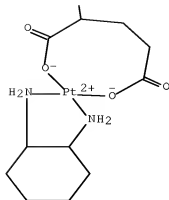
RN 297735-33-2 CAPLUS

CN Platinate(6-), tris[(1 α ,2 β)-1,2-cyclohexanediamine-
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κO)propyl]amino]-2,4,6-tris[[[(1S)-1,3-dicarboxypropyl]amino]-
2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato(12-)]]]tri-,
hexalithium (9CI) (CA INDEX NAME)

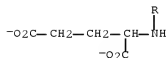
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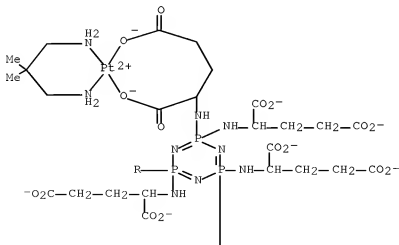


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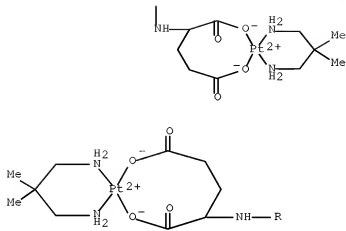


RN 330163-62-7 CAPLUS
 CN Platinate(6-), tris(2,2-dimethyl-1,3-propanediamine-
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 κO)propyl]amino]-2,4,6-tris[[(1S)-1,3-dicarboxypropyl]amino]-
 2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato(12-)]]tri-,
 hexalithium (9CI) (CA INDEX NAME)

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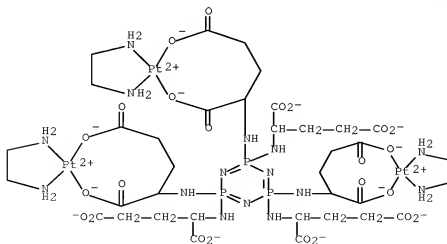
PAGE 3-A

● 5 L1 +

RN 330163-63-8 CAPLUS

CN Platinate(6-), tris(1,2-ethanediamine-κN,κN') [μ3-[2,4,6-tris[[[(1S)-1,3-di(carboxy-κO)propyl]amino]-2,4,6-tris[[[(1S)-1,3-dicarboxypropyl]amino]-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphinato(12-)]]tri-, hexalithium (9CI) (CA INDEX NAME)

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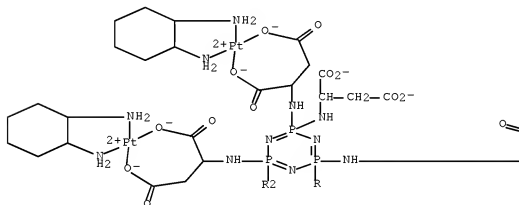


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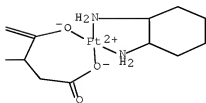


RN 330163-64-9 CAPLUS
 CN Platinate(6-), rel-tris[(1R,2R)-1,2-cyclohexanediamine-
 κN,κN'] [μ3-[2,4,6-tris[[(1S)-1,2-di(carboxy-
 κO)ethyl]amino]-2,4,6-tris[[(1S)-1,2-dicarboxyethyl]amino]-
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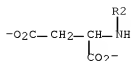
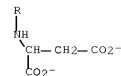
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PAGE 1-B



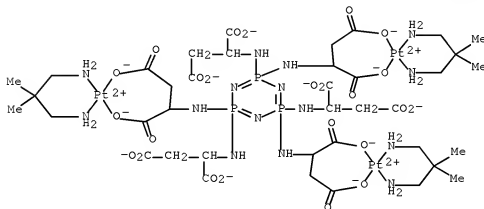
PAGE 2-A



RN 330163-65-0 CAPLUS

CN Platinate(6-), tris(2,2-dimethyl-1,3-propanediamine-κN,κN') [μ3-[2,4,6-tris[[[(1S)-1,2-di(carboxy-κO)ethyl]amino]-2,4,6-tris[[[(1S)-1,2-dicarboxyethyl]amino]-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato(12-)]]]tri-, hexalithium (9CI) (CA INDEX NAME)

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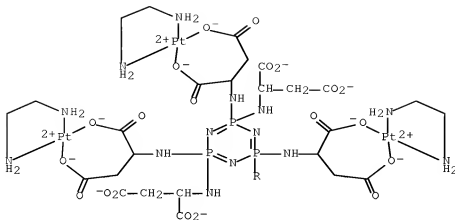
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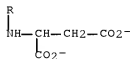
RN 330163-66-1 CAPLUS

CN Platinate(6-), tris(1,2-ethanediamine-κN,κN') [μ3-[2,4,6-tris[[[(1S)-1,2-di(carboxy-κO)ethyl]amino]-2,4,6-tris[[[(1S)-1,2-dicarboxyethyl]amino]-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato(12-)]]]tri-, hexalithium (9CI) (CA INDEX NAME)

PAGE 1-A

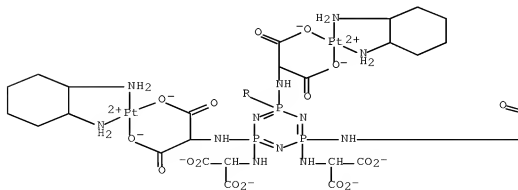


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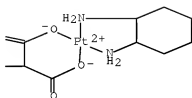
● 6 Li⁺

RN 330163-67-2 CAPLUS
 CN Platinate(6-), rel-tris[(1R,2R)-1,2-cyclohexanediamine-
 κN,κN'] [μ3-[2,4,6-tris[[di(carboxy-κO)methyl]amino]-
 2,4,6-tris[[dicarboxymethyl]amino]-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-
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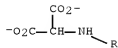
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PAGE 1-B



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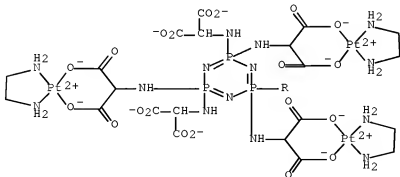


●6 Li+

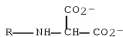
RN 330163-68-3 CAPLUS

CN Platinate(6-), tris(1,2-ethanediamine-κN,κN') [μ3-[2,4,6-tris[[di(carboxy-κO)methyl]amino]-2,4,6-tris[[dicarboxymethyl]amino]-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato(12-)] tri-, hexalithium (9CI) (CA INDEX NAME)

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●6 Li⁺

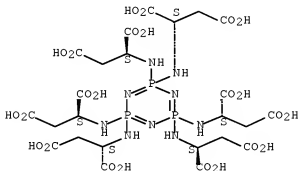
IT 297735-46-7 297735-51-4 297735-55-9

RL: RCT (Reactant); RACT (Reactant or reagent)
 (synthesis and antitumor activity of
 cyclotriphosphazene-(diamine)platinum conjugates)

RN 297735-46-7 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexakis[(1S)-1,2-dicarboxyethylamino]-2,2,4,4,6,6-hexahydro-, dodecalithium salt (9CI)
 (CA INDEX NAME)

Absolute stereochemistry.

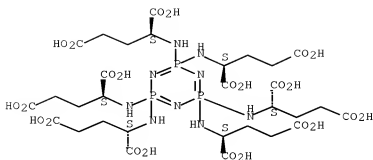


●12 Li

RN 297735-51-4 CAPLUS

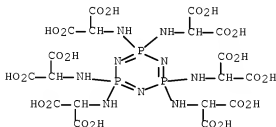
CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexakis[(1S)-1,3-dicarboxypropylamino]-2,2,4,4,6,6-hexahydro-, dodecalithium salt (9CI)
 (CA INDEX NAME)

Absolute stereochemistry.



● 12 Li

RN 297735-55-8 CAPLUS
 CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexakis[(dicarboxymethyl)amino]-2,2,4,4,6,6-hexahydro-, dodecalithium salt (9CI) (CA INDEX NAME)



● 12 Li

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L140 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:707175 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 133:290337

TITLE: Platinum complex conjugated to cyclotriphosphazene, its preparation, and anticancer agent comprising the same

INVENTOR(S): Sohn, Youn Soo; Baek, Hyoung Gee; Lee, Chong Ok

PATENT ASSIGNEE(S): Korea Institute of Science and Technology, S. Korea; Il-Yang Pharm. Co., Ltd.

SOURCE: PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

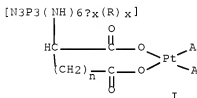
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000058321	A1	20001005	WO 1999-KR771	19991214

W: CA, JP
 RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
 PT, SE
 KR 2000061478 A 20001025 KR 1999-10532 19990326
 CA 2323140 A1 20001005 CA 1999-2323140 19991214
 EP 1082331 A1 20010314 EP 1999-959983 19991214
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, FI
 JP 2002540212 T 20021126 JP 2000-608021 19991214
 US 6221906 B1 20010424 US 2000-517718 20000302
 PRIORITY APPLN. INFO.: KR 1999-10532 A 19990326
 WO 1999-KR771 W 19991214
 OTHER SOURCE(S): MARPAT 133:290337
 GI



- AB The present invention relates to platinum complexes conjugated to a cyclotriphosphazene, I [R = solubilizing agent selected from MeNH₂, MeO, and amino acid; A = NH₃ or A₂ = bidentate chelating diamine selected from NH₂CH₂CH₂NH₂ (en), 2,2-dimethyl-1,3-propanediamine (dmpda), 2,2-bis(aminomethyl)-1,3-propanediol (bampd), trans-(±)-1,2-diaminocyclohexane], and a method for their preparation. The Pt complexes can be used as an anticancer agent. Thus, the oligomeric platinum complex is prepared by (1) substitution of hexachlorocyclotriphosphazene with a solubilizing agent and a dicarboxylic amino acid derivative as spacer, and (2) conjugation of the platinum complex to the spacer group. The oligomer platinum complexes have a lower toxicity (mouse LD₅₀ = 125-250 mg/kg) compared to cisplatin (LD₅₀ = 13 mg/kg), a higher anticancer activity (ILS(%) ≥ 500), and it does not exhibit anaphylactic reaction, unlike polymeric platinum complexes developed previously by the present inventors. Also, the claimed compds. exhibit a wider spectrum of activity in that it shows high anticancer activity to non-small cell lung cancer that is not cured by cisplatin-based regimens.
- IC ICM C07F015-00
 ICS C07F009-6593; A61K031-66; A61K031-282
- CC 78-7 (Inorganic Chemicals and Reactions)
 Section cross-reference(s): 1, 34
- IT 940-71-6, Hexachlorocyclotriphosphazene 6384-18-5, L-Aspartic acid dimethyl ester 6525-53-7, L-Glutamic acid dimethyl ester 15978-93-5
 23858-10-8 53704-09-9, Dimethyl aminomalonate 72968-08-2 121958-12-1
 189630-51-1 297735-50-3 297735-51-4 297735-53-6
 297735-55-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (for preparation of anticancer platinum complex conjugated to cyclophosphazene)
- IT 60732-70-9P 104418-73-7P 240422-73-5P 297735-46-7P
 297735-47-8P 297735-49-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(for preparation of anticancer platinum complex conjugated to cyclophosphazene)

IT 297735-21-8P 297735-28-5P 297735-30-9P 297735-31-0P
297735-32-1P 297735-33-2P 297735-34-3P 297735-36-5P
297735-40-1P 297735-41-2P 297735-43-4P

RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation as antitumor agent)

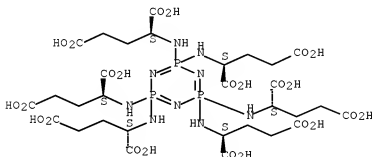
IT 297735-51-4 297735-55-8

RL: RCT (Reactant); RACT (Reactant or reagent)
(for preparation of anticancer platinum complex conjugated to cyclophosphazene)

RN 297735-51-4 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexakis[[(1S)-1,3-dicarboxypropyl]amino]-2,2,4,4,6,6-hexahydro-, dodecalithium salt (9CI)
(CA INDEX NAME)

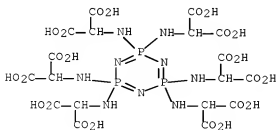
Absolute stereochemistry.



● 12 Li

RN 297735-55-8 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexakis[(dicarboxymethyl)amino]-2,2,4,4,6,6-hexahydro-, dodecalithium salt (9CI) (CA INDEX NAME)



● 12 Li

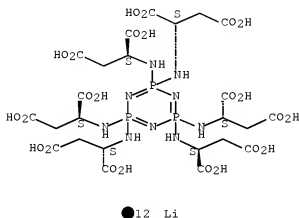
IT 297735-46-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(for preparation of anticancer platinum complex conjugated to
cyclophosphazene)

RN 297735-46-7 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexakis[[(1S)-1,2-
dicarboxyethyl]amino]-2,2,4,4,6,6-hexahydro-, dodecalithium salt (9CI)
(CA INDEX NAME)

Absolute stereochemistry.



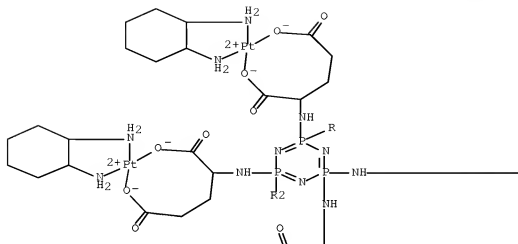
IT 297735-32-1P 297735-33-2P

RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological
study); PREP (Preparation); USES (Uses)
(preparation as antitumor agent)

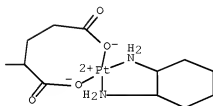
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CN Platinate(2-), pentakis[(1 α ,2 β)-1,2-cyclohexanediamine-
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κO)propyl]amino]-6-[[(1S)-1,3-dicarboxypropyl]amino]-2,2,4,4,6,6-
hexahydro-1,3,5,2,4,6-triazatriphosphorinato(12-)]penta-, dilithium (9CI)
(CA INDEX NAME)

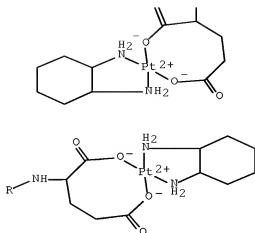
PAGE 1-A



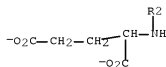
PAGE 1-B



PAGE 2-A



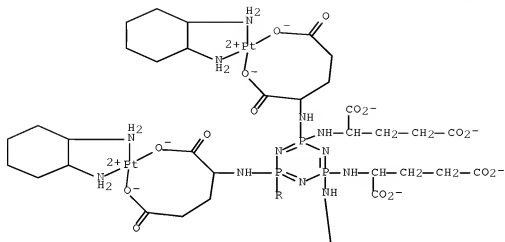
PAGE 3-A

●2 Li⁺

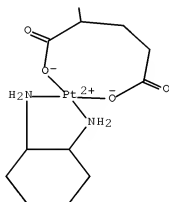
RN 297735-33-2 CAPLUS

CN Platinate(6-), tris[(1 α ,2 β)-1,2-cyclohexanediamine-
 κ N, κ N'] [μ 3-[2,4,6-tris[[[(1S)-1,3-di(carboxy-
 κ O)propyl]amino]-2,4,6-tris[[[(1S)-1,3-dicarboxypropyl]amino]-
 2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato(12-)]]tri-,
 hexalithium (9CI) (CA INDEX NAME)

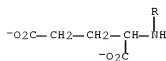
PAGE 1-A



PAGE 2-A



PAGE 3-A



REFERENCE COUNT:

4

THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L140 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:133496 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 132:317184

TITLE: Cis-trihydrogen cyclotriphosphazenes-acidic anions in strongly basic media

AUTHOR(S): Lawson, Gavin T.; Rivals, Frederic; Tascher, Mathieu; Jacob, Chacko; Bickley, Jamie F.; Steiner, Alexander
CORPORATE SOURCE: Dep. Chem., University of Liverpool, Liverpool, L69 7ZD, UK

SOURCE: Chemical Communications (Cambridge) (2000), (5), 341-342

CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Exclusively cis-protonation occurs at axial N-atoms of chair shaped P3N9 ring cores in the protolysis of the Li salt of hexaanionic cyclotriphosphazenate [(CyN)6P3N3]6- (Cy = cyclohexyl) with three equivalent of butan-1-ol. Cis-deprotonation takes place at the hexaprotic cyclotriphosphazene (PhNH)6P3N3 with three equivalent of BuLi, resp., yielding both times Li salts of cis-trihydrogen cyclotriphosphazenes [(RNH)3(RN)3P3N3]3- (R = Cy, Ph). The crystal and mol. structures of [(CyNH)6(CyN)3P3N3Li3]2·PhMe and [(PhNH)6(PhN)3P3N3Li3(THF)6]·4THF are reported.

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 75

IT 134435-36-2P 176513-95-4P

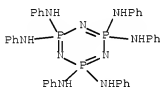
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation, protonation and deprotonation)

IT 134435-36-2P 176513-95-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation, protonation and deprotonation)

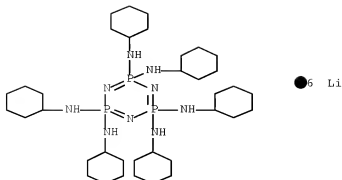
RN 134435-36-2 CAPLUS

CN 1,3,5,2,4,6-Triazatrisphosphorine, 2,2,4,4,6,6-hexahydro-2,2,4,4,6,6-hexakis(phenylamino)-, hexalithium salt (9CI) (CA INDEX NAME)



RN 176513-95-4 CAPLUS

CN 1,3,5,2,4,6-Triazatrisphosphorine, 2,2,4,4,6,6-hexakis(cyclohexylamino)-2,2,4,4,6,6-hexahydro-, hexalithium salt (9CI) (CA INDEX NAME)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L140 ANSWER 9 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1996:211366 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 124:330719

ORIGINAL REFERENCE NO.: 124:61031a,61034a

TITLE: Hexalithiated
hexakis(cyclohexylamino)cyclotriphosphazene; a (Li⁺)₁₂
cage containing puckered [NP(NCy)₂]₃⁶⁻ ions
Steiner, Alexander; Wright, Dominic S.
Univ. Chem. Lab., Cambridge, CB2 1EW, UK
SOURCE: Angewandte Chemie, International Edition in English
(1996), 35(6), 636-7
CODEN: ACIEAY; ISSN: 0570-0833

PUBLISHER: VCH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The deprotonation of hexakis(cyclohexylamino)cyclotriphosphazene (H6L) with BuLi in the presence of tetramethylethylenediamine (TMEDA) gave [Li₆L(TMEDA)₃] (I) which on crystallization from THF/hexane gave [Li₆L(THF)₂]₂·2.5THF (II). I was characterized by IR spectra. II is monoclinic, space group C2/c, Z = 4, R = 0.067, R_w = 0.178. II has a centrosym. dimeric cage structure in which 12 Li cations are complexed by 2 chair-shaped L₆⁻ ions and by 4 THF's. The central core of the mol. of II is that of an approx. D_{3d} sym. polyhedron, formed by the interaction of the ring N and equatorially substituted NCy groups of the 2 L₆⁻ with 6 Li centers. Each metal center is coordinated by a bidentate N(ring)-P-N(eq) chelate system from 1 anion and by a further N(eq) interaction from another anion. The remaining Li cations are accommodated at the other P3N3 faces of each of the hexaanions.

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 75

IT 176513-96-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 176513-96-5P

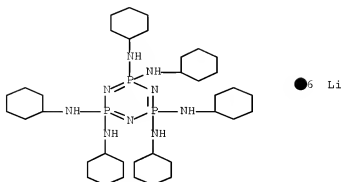
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 176513-96-5 CAPLUS

CN 1,2-Ethanediimine, N,N,N',N'-tetramethyl-, compd. with
2,2,4,4,6,6-hexakis(cyclohexylamino)-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-
triazatriphosphorine hexalithium salt (3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 176513-95-4
 CMF C36 H72 N9 P3 . 6 Li



CM 2

CRN 110-18-9
 CMF C6 H16 N2

Me2N-CH2-CH2-NMe2

L140 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1991:536375 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 115:136375

ORIGINAL REFERENCE NO.: 115:23395a,23398a

TITLE: Synthesis, reactivity, and the electronic structures of fluoro- and hydridophosphazene anions: x-ray crystal structure of [Li(THF)3][N3P3F2H(BEt3)(η-C5H4)2Fe]

AUTHOR(S): Allcock, Harry R.; Coggio, William D.; Manners, Ian; Parvez, Masood

CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park, PA, 16802, USA

SOURCE: Organometallics (1991), 10(9), 3090-8

CODEN: ORGND7; ISSN: 0276-7333

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 115:136375

AB The reaction of (NPF2)3 with 2.0 equiv of Li[BET3H] in THF at 25° yields a triethylborane-stabilized fluorophosphazene anion [N3P3F5BET3]-. This species possesses a nucleophilic P(V) center that reacts readily with organic halides such as MeI or PhCH2Br, with CF3CH2OH as a proton source, or with organometallic halides such as CpFe(CO)2I (Cp = η5-cyclopentadienyl) to produce N3P3F5Me, N3P3F5CH2Ph, N3P3F5H, or N3P3F5Fe(CO)2Cp, resp. The remaining fluorine atoms in these products were replaced by trifluoroethoxy groups to facilitate characterization. Reaction of (NPF2)3 with 3 equiv of Li[BET3H] in THF or reaction of the fluorophosphazene anion, [N3P3F5BET3]-, with 1 equiv of Li[BET3H] generated a hydridophosphazene anion [N3P3F4HBET3]-.

Similarly, reaction of the transannular ferrocenyl species $\text{N3P3F4}(\eta\text{-C5H4})_2\text{Fe}$ with 3 equiv of $\text{Li}[\text{BET3H}]$ in THF produced the hydridophosphazene anion $[\text{N3P3F2H}(\text{BET3})(\eta\text{-C5H4})_2\text{Fe}]^-$ in high yield. The electronic structures of the hydridophosphazene anions $[\text{N3P3F4HBET3}]^-$ or $[\text{N3P3F2H}(\text{BET3})(\eta\text{-C5H4})_2\text{Fe}]^-$ appear to differ significantly from that of the fluorophosphazene anion $[\text{N3P3F5BET3}]^-$. Spectroscopic and reactivity studies suggest that the P atom in the hydrido species exists in the +3 oxidation state, with the neg. charge residing mainly on skeletal N. This situation is supported by the x-ray diffraction study of the hydridophosphazene anion $[\text{N3P3F2H}(\text{BET3})(\eta\text{-C5H4})_2\text{Fe}]\text{-Li}(\text{THF})_3^+$, in which the lithium cation is coordinated to a skeletal N atom and is also surrounded by three THF mols.

CC 29-14 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 75

IT 135613-06-8P

RL: PREP (Preparation)

(formation and attempted reaction of, with organic electrophiles, ring cleavage by)

IT 135613-05-7P

RL: PREP (Preparation)

(formation, electronic structure, and reaction of, with electrophiles)

IT 135613-07-9P

RL: PREP (Preparation)

(formation, protonation with alc., and mol. structure of)

IT 135613-12-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

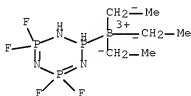
IT 135613-06-8P

RL: PREP (Preparation)

(formation and attempted reaction of, with organic electrophiles, ring cleavage by)

RN 135613-06-8 CAPLUS

CN Boron, triethyl(2,2,4,4-tetrafluoro-1,2,2,4,4,6-hexahydro-1,3,5,2,4,6-triazatriphosphorine-P6)-, monolithium salt, (T-4)- (9CI) (CA INDEX NAME)



● Li

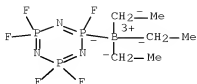
IT 135613-05-7P

RL: PREP (Preparation)

(formation, electronic structure, and reaction of, with electrophiles)

RN 135613-05-7 CAPLUS

CN Borate(1-), triethyl(2,2,4,4,6-pentafluoro-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato-P6)-, lithium, (T-4)- (9CI) (CA INDEX NAME)



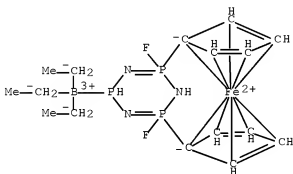
IT 135613-07-9P

RL: PREP (Preparation)

(formation, protonation with alc., and mol. structure of)

RN 135613-07-9 CAPLUS

CN Boron, triethyl[2,4-(1,1'-ferrocenediyl)-2,4-difluoro-1,2,2,4,4,6-hexahydro-1,3,5,2,4,6-triazatriphosphorine-P6]-, monolithium salt, (T-4)-(9CI) (CA INDEX NAME)



IT 135613-12-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

RN 135613-12-6 CAPLUS

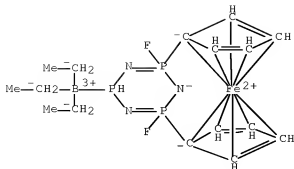
CN Lithium(1+), tris(tetrahydrofuran)-, (T-4)-triethyl[2,4-(1,1'-ferrocenediyl)-2,4-difluoro-1,2,2,4,4,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato-P6]borate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 135613-11-5

CMF C16 H24 B F2 Fe N3 P3

CCI CCS

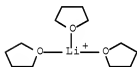


CM 2

CRN 61915-36-4

CMF C12 H24 Li O3

CCI	CCS
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L140 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1991:429615 CAPLUS Full-text

DOCUMENT NUMBER: 115:29615

ORIGINAL REFERENCE NO.: 115:5221a,5224a

TITLE: Pseudochalcogen compounds. XXVI. Reactions of organocyanamides, RNHCN (R = isopropyl) and silver phenylcyanamide, with hexachlorocyclotriphosphazene

AUTHOR(S): Jaeger, L.; Ahmed, S.; Koehler, H.

CORPORATE SOURCE: Sekt. Chem., Martin-Luther-Univ., Halle/Saale, O-4010, Germany

SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie
(1990), 591, 118-24

CODEN: ZAACAB; ISSN: 0044-2313

DOCUMENT TYPE: Journal

LANGUAGE: German

OTHER SOURCE(S): CASREACT 115:29615

AB Reactions of organocyanamides, RNHCN ($\text{R} = \text{CHMe}_2$) and $\text{Ag}[\text{RNCN}]$ ($\text{R} = \text{Ph}$), with P3N3C16 yield compds. of the type $\text{P3N3C16-n}[\text{N}(\text{CN})\text{R}]_n$. For these organocyanamides, a nongeminal ($\text{R} = \text{CHMe}_2$, $n = 3$) and geminal ($\text{R} = \text{Ph}$, $n = 2, 6$) mode of chlorine replacement was observed. The bonding of the cyanamide substituents, $\text{P-N}(\text{CN})\text{R}$, is confirmed by IR data as well as by a modified synthetic route.

CC 29-14 (Organometallic and Organometalloidal Compounds)

IT 14026-38-1 134435-36-2

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bromocyanogen)

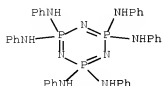
IT 134435-36-2

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with bromocyanogen)

RN 134435-36-2 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexahydro-2,2,4,4,6,6-hexakis(phenylamino)-, hexalithium salt (9CI) (CA INDEX NAME)

●⁶ Li

L140 ANSWER 12 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1989:213068 CAPLUS Full-text

DOCUMENT NUMBER: 110:213068

ORIGINAL REFERENCE NO.: 110:35371a,35374a

TITLE: Isolation and x-ray crystal structure of a phosphazene anion

AUTHOR(S): Manners, Ian; Coggio, William D.; Mang, Michael N.; Parvez, Masood; Allcock, Harry R.

CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park, PA, 16802, USA

SOURCE: Journal of the American Chemical Society (1989), 111(9), 3481-2

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 110:213068

GI For diagram(s), see printed CA Issue.

AB The first isolation and x-ray crystal structure determination of a phosphazene anion is reported. The Li salt of the anion [N3P3F2H(BEt3)(η-C5H4)2Fe]- (I) was prepared by treating Li[BET3H] with the transannular ferrocenylphosphazene [N3P3F4(η-C5H4)2Fe] in THF. The solid state structure consists of a phosphazene anion with a hydrogen and a triethylborane substituent at one skeletal P atom, together with a Li cation which is coordinated to a skeletal N atom and to three THF solvent mols.

CC 29-14 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 75

IT 120523-81-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal and mol. structure of)

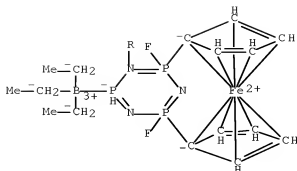
IT 120523-81-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal and mol. structure of)

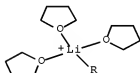
RN 120523-81-1 CAPLUS

CN Lithium, [μ-[2,4-(1,1'-ferrocenediyl)-2,4-difluoro-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorinato-N1:P6]]tris(tetrahydrofuran)(triethylboron)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



L140 ANSWER 13 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1987:534771 CAPLUS Full-text

DOCUMENT NUMBER: 107:134771

ORIGINAL REFERENCE NO.: 107:21793a,21796a

TITLE: Transition-metal derivatives of polyphosphazenes:
syntheses of polyphosphazenes and cyclic model
compounds with iron cyclopentadienyl carbonyl side
groups

AUTHOR(S): Allcock, Harry R.; Mang, Michael N.; McDonnell, Gayann
S.; Parvez, Masood

CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park,
PA, 16802, USA

SOURCE: Macromolecules (1987), 20(9), 2060-7

CODEN: MAMOBX; ISSN: 0024-9297

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polyphosphazenes with pendant $\text{FeCp}(\text{CO})_2$ groups (Cp = cyclopentadienyl) were prepared by treating poly(dichlorophosphazene) with $\text{NaOCH}_2\text{CF}_3$ followed by reaction with $\text{NaFeCp}(\text{CO})_2$ or $\text{FeCp}(\text{CO})_2\text{I}$ in THF. The resultant polymers were also treated with $\text{NaOCH}_2\text{CF}_3$ to replace residual Cl atoms by OCH_2CF_3 groups to give red-brownish, tough, film-forming materials which were soluble in acetone and THF. Spectroscopic comparisons were made with cyclic model compds. containing $\text{FeCp}(\text{CO})_2$ groups, the preparation of which was described in detail. Mol. characterization of the polymers was obtained indirectly by single-crystal x-ray structural study of the model compound $\text{N}_3\text{P}_3(\text{OCH}_2\text{CF}_3)_5\text{FeCp}(\text{CO})_2$.

CC 35-8 (Chemistry of Synthetic High Polymers)

IT 109122-68-1P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and reaction of with cyclopentadienyldicarbonyliron)

IT 109122-70-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)

(preparation and reaction of, with dicarbonylcyclopentadienyliodoiron or lithium triethylborohydride)

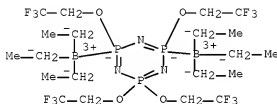
IT 109122-68-1P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation and reaction of with cyclopentadienyldicarbonyliron)

RN 109122-68-1 CAPLUS

CN Borate(2-), hexaethyl[μ-[2,2,4,4,6,6-hexahydro-2,2,4,6-tetrakis(2,2,2-trifluoroethoxy)-1,3,5,2,4,6-triazatriphosphorinato(2-)-P4:P6]]di-, dilithium (9CI) (CA INDEX NAME)

● 2 Li⁺

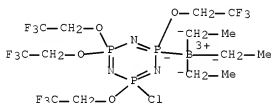
IT 109122-70-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction of, with dicarbonylcyclopentadienyliodoiron or lithium triethylborohydride)

RN 109122-70-5 CAPLUS

CN Borate(1-), [2-chloro-2,2,4,4,6,6-hexahydro-2,2,4,6-tetrakis(2,2,2-trifluoroethoxy)-1,3,5,2,4,6-triazatriphosphorinato-P6]triethyl-, lithium, (T-4)- (9CI) (CA INDEX NAME)

● Li⁺

L140 ANSWER 14 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1982:582652 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 97:182652

ORIGINAL REFERENCE NO.: 97:30565a,30568a

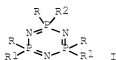
TITLE: Phosphazenes with olefinic side groups: proton

abstraction reactions of fluoroalkoxy derivatives

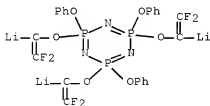
AUTHOR(S): Allcock, Harry R.; Suszko, Paul R.; Evans, Thomas L.

CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park,

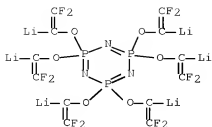
SOURCE: PA, 16802, USA
 Organometallics (1982), 1(11), 1443-9
 CODEN: ORGN7; ISSN: 0276-7333
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 97:182652
 GI



- AB Cyclic phosphazenes I ($R = R_1 = \text{PhO}$, $R_2 = \text{CF}_3\text{CH}_2\text{O}$; $R = \text{PhO}$, $\text{CF}_3\text{CH}_2\text{O}$, $R_1 = R_2 = \text{CF}_3\text{CH}_2\text{O}$) undergo dehydrofluorination and deprotonation on treatment with BuLi at -78° to give I ($R = R_1 = \text{PhO}$, $R_2 = \text{CF}_2\text{CLiO}$; $R = \text{PhO}$, CF_2CLiO , $R_1 = R_2 = \text{CF}_2\text{CLiO}$). These species are stable in solution at -78° but react with electrophiles such as Me_2CHOH , Me_2CHOD , MeI or Ph_3SnCl to yield the cyclophosphazenes with $-\text{OCH}:\text{CF}_2$, $-\text{OCD}:\text{CF}_2$, $-\text{OCMe}:\text{CF}_2$ or $-\text{OC}(\text{SnPh}_3):\text{CF}_2$ side groups, resp. Comparisons are made with the reactions between BuLi and trifluoroethoxy-substituted cyclic tetrameric and higher-polymeric phosphazenes.
- CC 29-14 (Organometallic and Organometalloidal Compounds)
- IT 82918-25-0P 82918-30-7P 82932-64-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation and reaction of, with electrophiles)
- IT 82918-25-0P 82918-30-7P 82932-64-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation and reaction of, with electrophiles)
- RN 82918-25-0 CAPLUS
- CN 1,3,5,2,4,6-Triazatriphosphorine, 2,4,6-tris[(2,2-difluoro-1-lithioethenyl)oxy]-2,2,4,4,6,6-hexahydro-2,4,6-triphenoxy-, stereoisomer (9CI) (CA INDEX NAME)

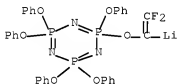


- RN 82918-30-7 CAPLUS
- CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexakis[(2,2-difluoro-1-lithioethenyl)oxy]-2,2,4,4,6,6-hexahydro- (9CI) (CA INDEX NAME)



RN 82932-64-7 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2-[(2,2-difluoro-1-lithioethyl)oxy]-2,2,4,4,6,6-hexahydro-2,4,4,6,6-pentaphenoxy- (9CI) (CA INDEX NAME)



L140 ANSWER 15 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1976:592805 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 85:192805

ORIGINAL REFERENCE NO.: 85:30843a,30846a

TITLE: The reactions of phosphorus fluorides with lithium bis(trimethylsilyl)amide

AUTHOR(S): Kling, Leo, III; Colburn, Charles B.; Hill, William E.

CORPORATE SOURCE: Dep. Chem., Auburn Univ., Auburn, AL, USA

SOURCE: Inorg. Nucl. Chem. - Herbert H. Hyman Mem. Vol. (1976), 5-7. Editor(s): Katz, Joseph J.; Sheft, Irving. Pergamon: Oxford, Engl.

CODEN: 33TZAU

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The reaction of $\text{LiN}(\text{SiMe}_3)_2$ (I) with PF_3 and $\text{P}(\text{S})\text{F}_3$ gave $\text{F}_2\text{PN}(\text{SiMe}_3)_2$ and $\text{F}_2\text{P}(\text{S})\text{N}(\text{SiMe}_3)_2$, resp., whereas the reaction of I with $\text{P}(\text{O})\text{F}_3$ and PF_5 gave, quant. yields of $\text{LiN}[\text{P}(\text{O})\text{F}_2]_2$ and $\text{LiN}[\text{PF}_4]_2$ resp., and FSiMe_3 .

CC 29-6 (Organometallic and Organometalloidal Compounds)

IT 420-56-4P 50732-22-4P 55837-33-7P 61056-33-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 55837-33-7P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 55837-33-7 CAPLUS

CN Imidodiphosphoryl fluoride, lithium salt (9CI) (CA INDEX NAME)



● Li

L140 ANSWER 16 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1975:411779 CAPLUS Full-text

DOCUMENT NUMBER: 83:11779

ORIGINAL REFERENCE NO.: 83:1975a,1978a

TITLE: Preparation of polyfluoroalkylenedioxy(polyfluoroalkoxy)cyclophosphazene polymers

AUTHOR(S): Korol'ko, V. V.; Sharov, V. N.; Sokolov, E. I.; Klebanskii, A. L.

CORPORATE SOURCE: Vses. Nauchno-Issled. Inst. Sint. Kauch. im. Lebedeva, Leningrad, USSR

SOURCE: Vysokomolekulyarnye Soedineniya, Seriya B: Kratkie Soobshcheniya (1975), 17(1), 64-7
CODEN: VYSBAI; ISSN: 0507-5483

DOCUMENT TYPE: Journal

LANGUAGE: Russian

GI For diagram(s), see printed CA Issue.

AB The polycondensation of 2,4-dichloro-2,4,6,6-tetrakis(2,2-dihydroperfluorobutoxy)cyclotriphosphazene (I, R=OCH₂C₃F₇) with 2,2,3,3,4,4-hexafluoropentamethylene-1,5-dioxylithium at 200-20° in Ar for 20-5 hr gave an elastic fluoropolymer (II) [55252-06-7]. II lost only 6% in weight during heating at 300° for 6 hr while retaining its initial elasticity. II did not burn and it resisted boiling 50% HNO₃, 30% HCl, or 10% KOH solution for 5 hr. It had low swelling in organic solvents and oil. Its rebound elasticity was 10-12%.

CC 38-4 (Elastomers, Including Natural Rubber)

IT 55252-06-7

RL: USES (Uses)
(rubber, fire-resistant)

IT 55252-06-7

RL: USES (Uses)
(rubber, fire-resistant)

RN 55252-06-7 CAPLUS

CN 1,5-Pentanediol, 2,2,3,3,4,4-hexafluoro-, dilithium salt, polymer with 2,4-dichloro-2,4,6,6-tetrakis(2,2,3,3,4,4-heptafluorobutoxy)-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatriphosphorine (9CI) (CA INDEX NAME)

CM 1

CRN 55252-05-6

CMF C5 H6 F6 O2 . 2 Li

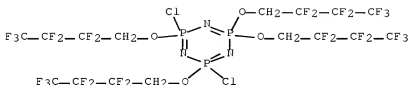
HO-CH₂-(CF₂)₃-CH₂-OH

● 2 Li

CM 2

CRN 32101-97-6

CMF C16 H8 Cl2 F28 N3 O4 P3



L140 ANSWER 17 OF 17 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1975:105835 CAPLUS Full-text

DOCUMENT NUMBER: 82:105835

ORIGINAL REFERENCE NO.: 82:16855a,16858a

TITLE: Bis(difluorophosphoryl)amine and some N-derivatives

AUTHOR(S): Fluck, E.; Beuerle, E.

CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Stuttgart, Stuttgart, Fed. Rep. Ger.

SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie (1975), 412(1), 65-70

CODEN: ZAACAB; ISSN: 0044-2313

DOCUMENT TYPE: Journal

LANGUAGE: German

AB LiN(POF₂)₂, prepared by the reaction of LiN(SiMe₃)₂ with OPF₃ in Et₂O at 0°, reacted with HOSO₂CF₃ in MeCN to give (OPF₂)₂NH. (Me₃Si)₂NMe reacted with (OPF₂)₂O to give OPF₂NMeSiMe₃ which reacted with (OPF₂)₂O to give (OPF₂)₂NMe. The compds. were characterized by ir spectra.

CC 78-8 (Inorganic Chemicals and Reactions)

IT 55837-33-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation and reaction with trifluoromethanesulfonic acid)

IT 55837-33-7E

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation and reaction with trifluoromethanesulfonic acid)

RN 55837-33-7 CAPLUS

CN Imidodiphosphoryl fluoride, lithium salt (9CI) (CA INDEX NAME)



● Li

SEARCH OF FORMULA IZ, CLAIM 9

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L5 STR

~~FILE~~
 1 2

NODE ATTRIBUTES:

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 NSPEC IS RC AT 2
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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

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 NUMBER OF NODES IS 2

STEREO ATTRIBUTES: NONE

L7 109078 SEA FILE=REGISTRY SSS FUL L5
 L67 STR



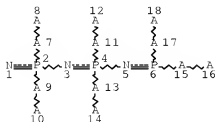
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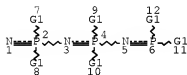
STEREO ATTRIBUTES: NONE
L69 STR



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DEFAULT ECLEVEL IS LIMITED

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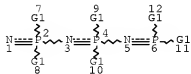
STEREO ATTRIBUTES: NONE
L70 STR



VAR G1=O/N
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE
L81 129 SEA FILE=REGISTRY SUB=L7 SSS FUL (L67 NOT ((L69 OR L70)))
L91 STR



A @13

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NODE ATTRIBUTES:
CONNECT IS E1 RC AT 13
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE
L93 55 SEA FILE=REGISTRY SUB=L81 SSS FUL L91

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L67 STR
L69 STR
L70 STR
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L91 STR
L93 55 SEA FILE=REGISTRY SUB=L81 SSS FUL L91
L94 41 SEA FILE=CAPLUS SPE=ON ABB=ON L93

=> s l94 not l139,l140 L139,L140 WERE PREVIOUSLY PRINTED
L141 41 L94 NOT (L139 OR L140)

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L141 ANSWER 1 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:145522 CAPLUS Full-text
 DOCUMENT NUMBER: 146:232676
 TITLE: Lithium secondary batteries suppressing electrolytes
 from decomposing at high temperature and their
 cathodes and cathode materials
 INVENTOR(S): Ichihashi, Akira; Kano, Gentaro; Okawa, Takeshi
 PATENT ASSIGNEE(S): Sony Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 17pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007035391	A	20070208	JP 2005-215427	20050726
PRIORITY APPLN. INFO.:			JP 2005-215427	20050726

OTHER SOURCE(S): MARPAT 146:232676

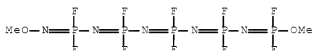
AB The battery cathodes contain materials coated with phosphazenes preferably represented by $X3(X1X2P:N)nX4$ [$X1-X4 = F, Cl, Br, \text{alkoxy}, \text{phenyl(oxy)}; n \geq 4$]. The cathodes may contain Li- and transition metal-containing active mass compds. Batteries containing the cathodes, anodes, and electrolytes inside film-type packages are also claimed. The batteries show less swelling on high-temperature uses.

IT 924658-17-3 924658-21-9 924658-23-1
 924658-25-3 924658-27-5 924658-28-6

RL: TEM (Technical or engineered material use); USES (Uses)
 (active-mass coatings; battery cathodes having phosphazene coatings on active masses and suppressing decomposition at high temperature)

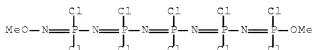
RN 924658-17-3 CAPLUS

CN Phosphorodifluoridimidic acid, N-[N-[N-(P,P-difluoro-N-methoxyphosphinimyl)-P,P-difluorophosphinimyl]-P,P-difluorophosphinimyl]-, methyl ester (CA INDEX NAME)



RN 924658-21-9 CAPLUS

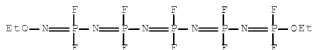
CN Phosphorodichloridimidic acid, N-[P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(P,P-dichloro-N-methoxyphosphinimyl)phosphinimyl]phosphinimyl]phosphinimyl]-, methyl ester (CA INDEX NAME)



RN 924658-23-1 CAPLUS

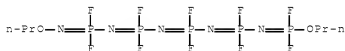
CN Phosphorodifluoridimidic acid, N-[N-[N-(N-ethoxy-P,P-

di fluorophosphinimyl)-P,P-difluorophosphinimyl]-P,P-difluorophosphinimyl]-
P,P-difluorophosphinimyl]-, ethyl ester (CA INDEX NAME)



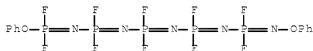
RN 924658-25-3 CAPLUS

CN Phosphorodifluoridimidic acid, N-[N-[N-(P,P-difluoro-N-propoxyphosphinimyl)-P,P-difluorophosphinimyl]-P,P-difluorophosphinimyl]-, propyl ester (CA INDEX NAME)



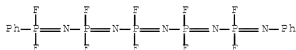
RN 924658-27-5 CAPLUS

CN Phosphorodifluoridimidic acid, N-[N-[N-(P,P-difluoro-N-phenoxyphosphinimyl)-P,P-difluorophosphinimyl]-P,P-difluorophosphinimyl]-, phenyl ester (CA INDEX NAME)



RN 924658-28-6 CAPLUS

CN Phosphoramidimidic difluoride, N'-(P,P-difluoro-N-phenylphosphinimyl)-N-[[[(difluorophenylphosphoranylidene)amino]difluorophosphoranylidene]amino]difluorophosphoranylidene]- (CA INDEX NAME)



L141 ANSWER 2 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2005:1094894 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 144:11989

TITLE: Revisiting the Electronic Structure of Phosphazenes

AUTHOR(S): Chaplin, Adrian B.; Harrison, John A.; Dyson, Paul J.

CORPORATE SOURCE: Institut des Sciences et Ingenierie Chimiques, Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, CH-1015, Switz.

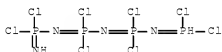
SOURCE: Inorganic Chemistry (2005), 44(23), 8407-8417
 CODEN: INOCAJ; ISSN: 0020-1669
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Natural bond orbital (NBO) and topol. electron d. analyses have been used to investigate the electronic structure of phosphazenes [N3P3R6] (R = H, F, Cl, Br, CH3, CF3, N(C2H4); 2R = O2C6H4), [N4P4Cl8], and H[NPCl2]4H. Using the former, the two most likely phosphazene bonding alternatives, neg. hyperconjugation and ionic bonding have been critically evaluated. Ionic bonding, as suggested by topol. anal., was found to be the dominant bonding feature, although contributions from neg. hyperconjugation are necessary for a more complete bonding description. Substituent effects on the P-N bond have been assessed and cases of bond length alternation have been rationalized using this combined bonding model, which supersedes previous models involving d-orbital participation, leading to an explanation for the observed bond length alternation found in some linear polyphosphazenes. In addition, common aromaticity indicators, nucleus independent chemical shifts (NICS) and para-delocalization indexes (PDI), have been determined for the cyclophosphazenes.

IT 869590-66-9
 RL: PRP (Properties)
 (electronic structure of phosphazenes)

RN 869590-66-9 CAPLUS

CN Phosphoramidimidic dichloride, [P,P-dichloro-N-(P,P-dichlorophosphinimyl)phosphinimyl](dichlorophosphoranylidene)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 79 THERE ARE 79 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L141 ANSWER 3 OF 41 CAPLUS COPYRIGHT 2009 ACS ON STN
 ACCESSION NUMBER: 2004:1017667 CAPLUS [Full-text](#)
 DOCUMENT NUMBER: 143:153987
 TITLE: Raman spectra of short linear and cyclic molecular oligomers and of polymeric chlorophosphazenes
 AUTHOR(S): Bougeard, Daniel; Dhamelincourt, Paul; Bremard, Claude
 CORPORATE SOURCE: Laboratoire de Spectrochimie Infrarouge et Raman, CNRS, UMR, Université des Sciences et Technologies de Lille, Villeneuve d'Ascq, 59655, Fr.
 SOURCE: Applicative Aspects of Cyclophosphazenes (2004), 357-363. Editor(s): Gleria, Mario; De Jaeger, Roger. Nova Science Publishers, Inc.: Hauppauge, N. Y. CODEN: 69GDPN; ISBN: 1-59454-026-8
 DOCUMENT TYPE: Conference
 LANGUAGE: English

AB The Raman spectra of small oligomers and of polymers on the basis of the phosphazene group as well as corresponding normal modes description, such as short linear and cyclic mol. oligomers and polymeric chlorophosphazenes, were investigated. Results show that most intense bands observed in the polymer spectra are due to the presence of the P-Cl bonds, which yields a large intensity because of the strong polarizability of the chlorine atoms. As a consequence, one can deduce that when this polymer is substituted and the

chlorine atoms will be replaced by organic moieties that part of the intensity will disappear and the most stringent patterns of the spectra will be due to the side chains. This effect was observed for [NPR2]_n, R = OCH₂CF₃, OC₆H₅) as well as for R = O₂C12H₈. Therefore Raman spectroscopy will be unable to yield information about the polyphosphazene skeleton for which the conformational information, contained in the region around 1000/cm, is hidden behind the bands of the substituents, but on the contrary is the right tool to study the variations of the side chain conformations.

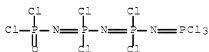
IT 36775-73-2

RL: PRP (Properties)

(Raman spectra of short linear and cyclic mol. oligomers and of polymeric chlorophosphazenes)

RN 36775-73-2 CAPLUS

CN Phosphoramidic dichloride,
[dichloro([dichloro(trichlorophosphoranylidene)amino]phosphoranylidene)amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L141 ANSWER 4 OF 41 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2004:742208 CAPLUS Full-text

DOCUMENT NUMBER: 141:396023

TITLE: Combined ab Initio Quantum Mechanics and Classical Molecular Dynamics Studies of Polyphosphazene Polymer Electrolytes: Competitive Solvation of Li⁺ and LiCF₃SO₃

AUTHOR(S): Wang, Yixuan; Balbuena, Perla B.

CORPORATE SOURCE: Department of Chemical Engineering, Texas A&M University, College Station, TX, 77843, USA

SOURCE: Journal of Physical Chemistry B (2004), 108(40), 15694-15702

CODEN: JPCBFK; ISSN: 1520-6106

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ab initio quantum mechanics (QM) and classical mol. dynamics (MD) simulations are employed to model an electrolyte composed of a polyphosphazene (PP), lithium triflate (LiCF₃SO₃), and water. Structures and energetics are systematically studied by QM for binary complexes of Li⁺, CF₃SO₃⁻, and Li⁺CF₃SO₃⁻ with water or PP fragments, and for ternary combinations of Li⁺CF₃SO₃⁻, PP fragments, and water. Li⁺ interacts most strongly with the backbone nitrogen of PP, somewhat more weakly (and comparably) with ether oxygens on PP side chains and with water oxygens. This indicates that Li⁺-N interactions should significantly affect migration of Li⁺ in PP polymer electrolytes. Calculated coordination patterns of Li⁺ with the poly(ethylene oxide) model (ethylene oxide)₆ [(EO)₆] agree with exptl. results in which Li⁺ is strongly coordinated with five oxygens in PEO. Binary aggregates of LiCF₃SO₃ and (EO)₆ are also examined. Both Li⁺ and LiCF₃SO₃ coordinate preferentially with neighboring N atoms and a methoxy oxygen near the PP backbone. Classical MD simulations qual. reproduce the results of QM calcs., and provide details about the Li⁺ distribution in a larger system. Results of

the QM and classical MD calcns. suggest a model for the microstructure of the polyelectrolyte.

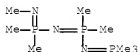
IT 790276-35-6 790713-59-6

RL: PRP (Properties)

(combined ab initio quantum mechanics and classical mol. dynamics studies of competitive solvation of lithium ions and lithium triflate model compds. for polyphosphazene polymer electrolytes)

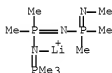
RN 790276-35-6 CAPLUS

CN Methanamine, N-(1,1,3,3,5,5-hexamethyl-2,4-diaza-1,3,5-triphosphahexa-2,4-dien-1-ylidene)- (CA INDEX NAME)



RN 790713-59-6 CAPLUS

CN Lithium(1+), [P,P-dimethyl-N'-(trimethylphosphinimyl)-N-(trimethylphosphoranylidene)phosphinimidic amide-kN]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L141 ANSWER 5 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:290762 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 141:32906

TITLE: A New, Convenient Synthesis of the Linear Phosphazene Salt [Cl3P:N:PCl3]Cl: Preparation of Higher Linear Homologues [Cl3P:N-(PCl2:N)x:PCl3]Cl (x = 1-3) and the 16-Membered Macrocyclic [NCCl(NPCl2)3]2

AUTHOR(S): Rivard, Eric; Lough, Alan J.; Manners, Ian
CORPORATE SOURCE: Department of Chemistry, Davenport Laboratories, University of Toronto, Toronto, ON, M5S 3H6, Can.

SOURCE: Inorganic Chemistry (2004), 43(9), 2765-2767
CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

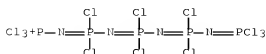
AB An improved synthetic route to the linear phosphazene salt [Cl3P:N:PCl3]Cl is reported. This species is a useful precursor to higher linear homologs and also to heterocycles such as the 16-membered carbophosphazene macrocycle [NCCl(NPCl2)3]2.

IT 697758-78-4P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 697758-78-4 CAPLUS

CN Phosphorus(1+), [[P,P-dichloro-N-[P,P-dichloro-N-(P,P-dichlorophosphinimyl)phosphinimyl]phosphinimyl]phosphorimidic trichloridato]-, chloride, (T-4)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L141 ANSWER 6 OF 41 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2001:667444 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 136:37660

TITLE: Intrinsic basicities of phosphorus imines and ylides: a theoretical study

AUTHOR(S): Koppel, Ilmar A.; Schwesinger, Reinhard; Breuer, Thomas; Burk, Peeter; Herodes, Koit; Koppel, Ivar; Leito, Ivo; Mishima, Masaaki

CORPORATE SOURCE: Institute of Chemical Physics Department of Chemistry, University of Tartu, Tartu, 51014, Estonia

SOURCE: Journal of Physical Chemistry A (2001), 105(41), 9575-9586

CODEN: JPCAFH; ISSN: 1089-5639

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A d. functional theory (B3LYP/6-311+G**), ab initio (HF/3-21G*), and semiempirical (PM3) study of intrinsic basicities, protonation energies, or protonation enthalpies of organic P imine (iminophosphorane) including phosphazene, P ylide (phosphorane), and phosphine superbases was performed. The study shows that representatives of the 1st two classes of the above-mentioned organic superbases can reach the basicity level of the strongest inorg. superbases such as alkali-metal hydroxides, hydrides, and oxides. The strongest organic phosphazene imine superbases are predicted to reach the gas-phase basicity level of .apprx.300 kcal/mol (number of P atoms in the system n ≥ 7), whereas the strongest organic phosphazene ylide superbases have (at n ≥ 5) gas-phase basicities around or beyond 310-320 kcal/mol. The phosphine superbases, including the J. G. Verkade's bicyclic phosphines (proazaphosphatranes) are predicted to have a basicity comparable to P2 phosphazenes or P1 P ylides, whereas the resp. proazaphosphatranes imines and ylides are expected to be the strongest organic superbases which contain only a single P atom. Extremely high expected basicity values and handling preferences over inorg. superbases make representatives of novel organic superbases possible partners for observing the spontaneous gas-phase proton transfer between neutral Bronsted superacids and -bases. For the comparison, the basicities of some alkali-metal substituted NH3, phosphine, P, and N ylides and imines were also calculated

IT 376650-71-4 376650-80-5 376651-61-5

376651-80-0

RL: PRP (Properties)

(theor. study of intrinsic basicities of phosphorus imines and ylides

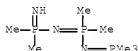
and related mols.)

RN 376650-71-4 CAPLUS

CN Phosphine imide, (N-phosphinimylphosphinimyl)- (CA INDEX NAME)



RN 376650-80-5 CAPLUS

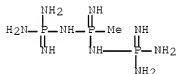
CN 3,5-Diaza-2,4,6-triphosphahepta-2,4-diene, 6-imino-2,2,4,4,6-pentamethyl-
(CA INDEX NAME)

RN 376651-61-5 CAPLUS

CN Phosphine imide, (N-phosphinimylphosphinimyl)-, conjugate acid (1:1) (CA INDEX NAME)



RN 376651-82-0 CAPLUS

CN Phosphorimidic triamide, N,N''''-(P-methylphosphinimidene)bis-,
conjugate monoacid (9CI) (CA INDEX NAME)

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L141 ANSWER 7 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1999:761543 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 132:12585

TITLE: Method for equilibrating and/or condensing
organosilicon compounds by using phosphazene-based
catalysts

INVENTOR(S): Deubzer, Bernhard; Herzig, Christian

PATENT ASSIGNEE(S): Wacker-Chemie GmbH, Germany
 SOURCE: U.S., 6 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

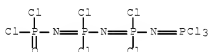
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5994490	A	19991130	US 1998-67871	19980428
PRIORITY APPLN. INFO.:			US 1998-67871	19980428

AB Organosilicon compds. are equilibrated and/or condensed by using catalyst systems obtained by reacting oxygen-containing phosphazenes with tertiary alcs. at temperature 0-70° and pressure 900-1100 hPa. Thus, 66.7 g Cl3P:N(PCl2:N)nPCl2O (n = 0-2) was mixed with 100 g tert-butanol at ≤40° to yield 166 g clear yellowish solution with viscosity 3.60 mm2/s at 25°, 0.1 g of which was added to a mixture of 50 g 1,3-divinyldimethyltetramethyldisiloxane and 350 g trimethyl-terminated polymethylsiloxane with viscosity 35 mm2/s (25°) to give a solution showing viscosity 18.4 mPa·s initially, 8.9 mm2/s after 30 min and no change after further 30 min.

IT 36775-73-2D, reaction products with tertiary alcs.
 RL: CAT (Catalyst use); USES (Uses)
 (catalyst; phosphazene-based catalysts for equilibrating and/or condensing organosilicon compds.)

RN 36775-73-2 CAPLUS

CN Phosphoramidic dichloride,
 [dichloro[[dichloro{(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L141 ANSWER 8 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 1999:425618 CAPLUS Full-text
 DOCUMENT NUMBER: 131:59248
 TITLE: Phosphonitrile catalyst composition for preparation of siloxanes
 INVENTOR(S): Habimana, Jean
 PATENT ASSIGNEE(S): Dow Corning Limited, UK
 SOURCE: Eur. Pat. Appl., 7 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 926187	A1	19990630	EP 1998-310403	19981217
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				

IE, SI, LT, LV, FI, RO

US 6048819	A	20000411	US 1998-216208	19981218
JP 11246664	A	19990914	JP 1998-367926	19981224
CN 1230547	A	19991006	CN 1998-126934	19981224

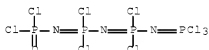
PRIORITY APPLN. INFO.: GB 1997-27136 A 19971224

AB A catalyst composition for use in the preparation of an organopolysiloxane comprises a γ -butyrolactone carrier and a phosphonitrile catalyst. Preferred phosphonitrile catalysts comprise $\text{Cl}_3\text{PNPCl}_2\text{NPCl}_3\text{PCl}_6$, ($\text{Cl}_3\text{P} = \text{N}-(\text{PCl}_2 = \text{N})_d-\text{PCl}_3$) + (SbCl_6)⁻ wherein d is 1 to 4, and compds. of the formula $\text{Y}(\text{PX}_2 = \text{N})_a\text{PX}_2\text{O}$ wherein X is chlorine, hydroxyl or an organosilicon radical bonded to phosphorous via oxygen, and a is 1 to 5. Also disclosed is a method for producing an organopolysiloxane by polymerization reaction in the presence of a said catalyst composition, and use of γ -butyrolactone as a carrier for a phosphonitrile catalyst in the preparation of an organopolysiloxane.

IT 36775-73-2 81005-15-4 160952-35-2
227798-19-8
RL: CAT (Catalyst use); USES (Uses)
(phosphonitrile catalyst composition for preparation of siloxanes)

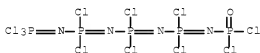
RN 36775-73-2 CAPLUS

CN Phosphoramidic dichloride,
[dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



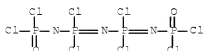
RN 81005-15-4 CAPLUS

CN Phosphorimidic trichloride, [P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)



RN 160952-35-2 CAPLUS

CN Phosphorodichloridimidic acid, [P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)

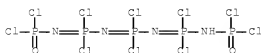


ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

RN 227798-19-8 CAPLUS

CN Phosphoramidic dichloride,

[dichloro[[dichloro[[dichloro[(dichlorophosphinyl)amino]phosphoranylidene]
amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L141 ANSWER 9 OF 41 CAPLUS COPYRIGHT 2009 ACS ON STN
ACCESSION NUMBER: 1998:742341 CAPLUS Full-text
DOCUMENT NUMBER: 130:4214
TITLE: Method for equilibrating and/or condensing
organosilicon compounds
INVENTOR(S): Herzig, Christian; Deubzer, Bernhard; Stallbauer,
Reinhard
PATENT ASSIGNEE(S): Wacker-Chemie G.m.b.H., Germany
SOURCE: Ger. Offen., 7 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19719340	A1	19981112	DE 1997-19719340	19970507
EP 878478	A1	19981118	EP 1998-107927	19980430
EP 878478	B1	19990825		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO

JP 10316756	A	19981202	JP 1998-123418	19980506
JP 3022480	B2	20000321		

PRIORITY APPLN. INFO.: DE 1997-19719340 A 19970507

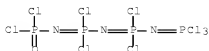
OTHER SOURCE(S): MARPAT 130:4214

AB Compns. obtained by reaction of tertiary alcs. with O-containing phosphazenes, preferably having the structure YPCl₂:N(PCl₂:N)nPCl₂O (Y = Cl, OH; n = 0-8), at 0-70° and 900-1100 hPa facilitate the equilibration and/or condensation of organosilicon compds. when added in the amount of 0.1-1000 ppm. Thus, 66.7 g of a mixture of Cl₃P:NPCl₂:NPCl₂O with its next lower and higher homologs was stirred with 100 g tert-BuOH at ≤40° to give a clear yellow solution with viscosity 3.60 mm²/s at 25°. When 0.1 g of this solution was added to a mixture of 50 g CH₂:CHSiMe₂OSiMe₂CH₂CH₂ and 350 g Me₃Si(OSiMe₂)nOSiMe₃ of viscosity 35 mm²/s (25°) and stirred, the viscosity reached a constant value of 8.9 mm²/s within 30 min.

IT 36775-73-2DE, reaction products with tertiary alcs.
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)
(catalysts for equilibrating and/or condensing organosilicon compds.)

RN 36775-73-2 CAPLUS

CN Phosphoramidic dichloride,
[dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



L141 ANSWER 10 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1996:451855 CAPLUS Full-text

DOCUMENT NUMBER: 125:195836

ORIGINAL REFERENCE NO.: 125:36687a,36690a

TITLE: An ab initio and force field study on the conformation and chain flexibility of the dichlorophosphazene trimer

AUTHOR(S): Jaeger, Raimund; Vancso, G. Julius

CORPORATE SOURCE: Fac. Chem. Technol., Univ. Twente, Enschede, 7500 AE, Neth.

SOURCE: Macromolecular Theory and Simulations (1996), 5(4), 673-689

CODEN: MTHSEK; ISSN: 1022-1344

PUBLISHER: Huethig & Wepf

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The conformation, valence electron charge d., and chain flexibility of the dichlorophosphazene trimer Me[NP(Cl₂)]₃Me were studied by ab initio MO calcns. at the RHF level with the 6/31 G* basis set. The trimer adopts a planar trans-cis conformation. The valence electron charge distribution indicates strong charge seps. along the backbone of the mol., and is in agreement with Dewar's island delocalization model for bonding in linear and cyclic phosphazenes. To determine the height of the torsional barrier (2.5 kcal/mol), the torsional potential of a central P-N bond of the trimer was studied with a rigid rotor scan and geometry optimizations of selected rotamers. The flexibility of the P-N-P bond angle contributes to the chain flexibility. Based on the results of the ab initio calcns., an empirical force field for the trimer was developed. The energy expression includes bond stretch, angle bend, electrostatic, van der Waals, and torsional potential terms. A relaxed scan with the force field achieves good agreement with the ab initio results for the torsional potential in the vicinity of the stable conformation, and an excellent agreement with the ab initio results on changes in the P2N2P3 bond angle and the N1P2-N2P3 dihedral angle during a full rotation around the N2-P3 bond.

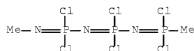
IT 181149-04-2

RL: PRP (Properties)

(conformation and chain flexibility of dichlorophosphazene trimer)

RN 181149-04-2 CAPLUS

CN Phosphoramidimidic dichloride,
[dichloro[(dichloromethylphosphoranylidene)amino]phosphoranylidene]methyl-
(9CI) (CA INDEX NAME)



L141 ANSWER 11 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1995:599518 CAPLUS Full-text

DOCUMENT NUMBER: 123:10862

ORIGINAL REFERENCE NO.: 123:2241a,2244a

TITLE: Chlorophosphazene catalysts for condensing and/or equilibrating siloxanes

INVENTOR(S): Hager, Rudolf; Schneider, Otto; Schuster, Johann

PATENT ASSIGNEE(S): Wacker-Chemie G.m.b.H., Germany

SOURCE: Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 626415	A1	19941130	EP 1994-108132	19940526
EP 626415	B1	19970205		
R: BE, DE, ES, FR, GB, IT, NL				
DE 4317909	A1	19941201	DE 1993-4317909	19930528
ES 2096974	T3	19970316	ES 1994-108132	19940526
CA 2124518	A1	19941129	CA 1994-2124518	19940527
CA 2124518	C	19990112		
JP 06345871	A	19941220	JP 1994-115674	19940527
CN 1101048	A	19950405	CN 1994-105862	19940527
CN 1047175	C	19991208		
US 5380902	A	19950110	US 1994-250884	19940531
			DE 1993-4317909	A 19930528

PRIORITY APPLN. INFO.:

AB The title catalysts are O-containing phosphazenes, especially those with the composition $\text{YP}(\text{Cl})_2\text{N}[\text{P}(\text{Cl})_2\text{N}]_n\text{POCl}_2$ ($\text{Y} = \text{Cl}$ or OH , $n = 0-8$). Stirring 475 g OH group-terminated di-Me siloxane and 25 g Me3Si group-terminated di-Me siloxane (viscosity 80 and 20 mm²/s, resp.) with 0.30 mL solution of 1 g $\text{Cl}_3\text{P}:\text{NP}(\text{Cl})_2:\text{NPOCl}_2$ [prepared by controlled hydrolysis of $[\text{Cl}_3\text{P}:\text{NP}(\text{Cl})_2:\text{NPOCl}_3] + \text{PCl}_5$] in 113.5 mL PhMe at 150° for 10 min gave a Me3Si group-terminated di-Me siloxane with viscosity 4000 mm²/s, which remained colorless and odorless after several days at 200°.

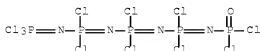
IT 81005-15-4P 160952-35-2P

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)

(chlorophosphazene catalysts for condensing and/or equilibrating siloxanes)

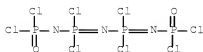
RN 81005-15-4 CAPLUS

CN Phosphorimidic trichloride, $[\text{P},\text{P}-\text{dichloro-N}[\text{P},\text{P}-\text{dichloro-N}[\text{P},\text{P}-\text{dichloro-N}-(\text{dichlorophosphinyl})\text{phosphinimyl}]\text{phosphinimyl}]\text{phosphinimyl}]-(9\text{CI})$ (CA INDEX NAME)



RN 160952-35-2 CAPLUS

CN Phosphorodichloridimidic acid, $[\text{P},\text{P}-\text{dichloro-N}[\text{P},\text{P}-\text{dichloro-N}-(\text{dichlorophosphinyl})\text{phosphinimyl}]\text{phosphinimyl}]-(9\text{CI})$ (CA INDEX NAME)



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

IT 21283-49-8

RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolysis of)

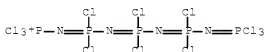
RN 21283-49-8 CAPLUS

CN Phosphorus(1+), trichloro[[P,P-dichloro-N-[P,P-dichloro-N-(P,P-dichlorophosphinimyl)phosphinimyl]phosphinimyl]phosphorimidic trichloridato]-, (T-4)-, hexachlorophosphate(1-) (1:1) (CA INDEX NAME)

CM 1

CRN 45261-08-3

CMF Cl12 N4 P5



CM 2

CRN 16920-87-9

CMF Cl6 P

CCI CCS



L141 ANSWER 12 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1995:599516 CAPLUS Full-text

DOCUMENT NUMBER: 123:10277

ORIGINAL REFERENCE NO.: 123:2149a,2152a

TITLE: Preparation and use of phosphazenes bearing organosilane groups

INVENTOR(S): Hager, Rudolf; Deubzer, Bernward; Schneider, Otto

PATENT ASSIGNEE(S): Wacker-Chemie G.m.b.H., Germany

SOURCE: Eur. Pat. Appl., 16 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 626414	A1	19941130	EP 1994-108131	19940526
EP 626414	B1	19970205		
R: BE, DE, ES, FR, GB, IT, NL				
DE 4317978	A1	19941201	DE 1993-4317978	19930528
US 5424385	A	19950613	US 1994-248778	19940525
CA 2124428	A1	19941129	CA 1994-2124428	19940526
CA 2124428	C	19971111		
CN 1099757	A	19950308	CN 1994-105928	19940526
CN 1051555	C	20000419		
ES 2096973	T3	19970316	ES 1994-108131	19940526
JP 06345874	A	19941220	JP 1994-115675	19940527
PRIORITY APPLN. INFO.:			DE 1993-4317978	A 19930528

AB The title compound(s), especially those with the structure
 $\text{ZP}(\text{Cl})_2\text{:NIP}(\text{Cl})_2\text{:Nn}(\text{POC12})$ (Z = organosilyl group bonded via O to P, n = 0-6)
 are prepared and used as condensation catalysts in siloxane manufacture.
 Treating 100 g [$\text{P}(\text{Cl})_3\text{:NFC13}$] + PC16- with SO_2 (0.5 ml/min) for 1 h and
 stripping volatiles at 50°/100 Pa gave 49.6 g Cl3P:NPOC12 which was stirred
 (20 g) with 50 g Me3Si group-terminated di-Me siloxane (viscosity 350 mm²/s)
 at 100° for 2 h to give a colorless oil (viscosity 10 mm²/s) with the
 composition (ClMe2SiO1/2) (Me3SiO1/2) 0.07 (Me2SiO) 8P (Cl) 2:NPOC12.

IT 21283-49-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolysis of)

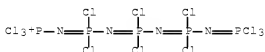
RN 21283-49-8 CAPLUS

Phosphorus(1-), trichloro[*P,P*-dichloro-*N*-(*P,P*-dichloro-*N*-(*P,P*-dichlorophosphinimyl)phosphinimyl)phosphinimyl]phosphorimidic trichloridato]-, (T-4)-, hexachlorophosphate(1-) (1:1) (CA INDEX NAME)

CM 1

CRN 45261-08-3

CMF C112 N4 P5



CM 2

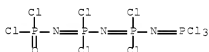
CRN 16920-87-9

CMF C16 P

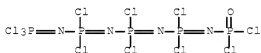
CCI CCS



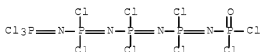
IT 36775-73-2P 81005-15-4DP, reaction products with
 siloxanes 81005-15-4P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (preparation of)
 RN 36775-73-2 CAPLUS
 CN Phosphoramidic dichloride,
 [dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



RN 81005-15-4 CAPLUS
 CN Phosphorimidic trichloride, [P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)

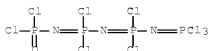


RN 81005-15-4 CAPLUS
 CN Phosphorimidic trichloride, [P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)



IT 36775-73-2DP, reaction products with siloxanes
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (preparation of, as condensation catalysts)
 RN 36775-73-2 CAPLUS
 CN Phosphoramidic dichloride,
 [dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)

ino]phosphoranylidene]- (9CI) (CA INDEX NAME)



L141 ANSWER 13 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1995:314892 CAPLUS Full-text

DOCUMENT NUMBER: 122:106629

ORIGINAL REFERENCE NO.: 122:20085a,20088a

TITLE: Phosphazene catalysis. The basis of linear technology for silicone production

AUTHOR(S): Hager, Rudolf; Weis, Johann

CORPORATE SOURCE: Wacker-Chemie GmbH, Johannes-Hess-Strasse, Burghausen, D-84489, Germany

SOURCE: Zeitschrift fuer Naturforschung, B: Chemical Sciences (1994), 49(12), 1774-80

CODEN: ZNBSEN; ISSN: 0932-0776

PUBLISHER: Verlag der Zeitschrift fuer Naturforschung

DOCUMENT TYPE: Journal

LANGUAGE: German

AB In order to better understand the catalytic mechanism of chlorophosphazenes, i.e., [PCl₃:N(PCl₂:N)xPCl₃]+[PCl₆]-; x = 1 or 2, in the polycondensation of siloxanols to various high-mol.-weight silicone polymers, the reaction behavior of these ionic phosphazenes with water and siloxanes was studied. Three addnl. types of phosphazenes were synthesized: PCl₃:N(PCl₂:N)xP(:O)Cl₂, HOPCl₂:N(PCl₂:N)xP(:O)Cl₂ and siloxy derivs. of the latter Me₃SiOPCl₂:N(PCl₂:N)xP(:O)Cl₂. Although several P-Cl bonds could be attacked by the nucleophiles, the reactions were found to be extremely selective and products were obtained in very high yields. Finally, relations between the phosphazene structure and catalytic activity were ascertained to find the optimal catalyst structure.

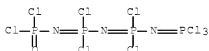
IT 36775-73-2P 160952-35-2P 160952-37-4P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(catalyst; phosphazene catalysis mechanism and its relationship to linear technol. for silicone production)

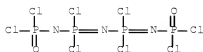
RN 36775-73-2 CAPLUS

CN Phosphoramidic dichloride,
[dichloro[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



RN 160952-35-2 CAPLUS

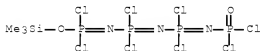
CN Phosphorodichloridimidic acid, [P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

RN 160952-37-4 CAPLUS

CN Phosphorodichloridimidic acid, [P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]-, trimethylsilyl ester (9CI) (CA INDEX NAME)



L141 ANSWER 14 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1994:134647 CAPLUS Full-text

DOCUMENT NUMBER: 120:134647

ORIGINAL REFERENCE NO.: 120:23727a,23730a

TITLE: Linear short-chain chlorophosphazenes. Syntheses, phosphorus-31 and nitrogen-15 NMR, and Raman scattering characterizations

AUTHOR(S): Bougeard, Daniel; Bremard, Claude; De Jaeger, Roger; Lemmouchi, Yahia

CORPORATE SOURCE: Lab. Spectrochim. Infrarouge Raman, Univ. Sci. Technol. Lille, Villeneuve d'Ascq, 59655, Fr.

SOURCE: Phosphorus, Sulfur and Silicon and the Related Elements (1993), 79(1-4), 147-59
CODEN: PSSLEC; ISSN: 1042-6507

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 120:134647

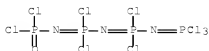
AB Two classes of short-chain linear chlorophosphazenes has been synthesized in high degree of purity, Cl₃PN(PCl₂N)nP(X)Cl₂ (X = O, n = 0, 1, 2, 3; X = S, n = 0, 1) and [Cl₃PN(PCl₂N)nPCl₂] [Y] (Y = Cl⁻, n = 0, 1; Y = PCl₆⁻, n = 0, 1, 2). New routes of synthesis were employed for some compds. All these mol. and ionic compds. were characterized by ³¹P, ¹⁵N NMR and Raman scattering at room temperature. A ³¹P NMR study of the mol. compds. Cl₃PN(PCl₂N)nP(X)Cl₂ as a function of temperature shows a coalescence phenomenon near 220K for two compds., Cl₃PN(PCl₂N)2P(O)Cl₂ and Cl₃PN(PCl₂N)3P(O)Cl₂ demonstrating the flexibility of the PN backbone. The Raman scattering provides evidence for planar cis-trans mol. conformation in the melt and in the solution as well as in the solid state for all the mol. compds.

IT 36775-73-2F 81005-15-4P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

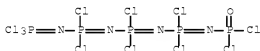
RN 36775-73-2 CAPLUS

CN Phosphoramidic dichloride,
[dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



RN 81005-15-4 CAPLUS

CN Phosphorimidic trichloride, [P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)



L141 ANSWER 15 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1994:108198 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 120:108198

ORIGINAL REFERENCE NO.: 120:19131a,19134a

TITLE: Conformational stability and force field of polyphosphazenes: MNDO calculations, vibrational spectra and normal coordinate analyses of [NP(R)2]_n (R = Cl, OCH2CF3, OC6H5)

AUTHOR(S): Bougeard, Daniel; Bremard, Claude; De Jaeger, Roger; Lemmouchi, Yahia

CORPORATE SOURCE: Lab. Spectrochim. Infrarouge Raman, Univ. Sci. Technol. Lille, Villeneuve d'Ascq, 59655, Fr.

SOURCE: Macromolecular Chemistry and Physics (1994), 195(1), 105-18

CODEN: MCHPES; ISSN: 1022-1352

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Raman and Fourier-transform Raman spectra (1,500-100 cm⁻¹) of poly(dichlorophosphazene) (PCl2N)_n (I) were recorded in the solid phase and in solution at room temperature Raman (3,500-100 cm⁻¹) and IR (4,000-200 cm⁻¹) spectra of [P(OCH2CF3)2N]_n (II) and [P(OC6H5)2N]_n (III) were recorded in the solid phase and at different temperature (in the case of Raman spectroscopy). The conformation of the isolated macromol. I is assumed to be analogous to the geometry of the Cl2(O)PN(PCl2N)6PCl3 oligomer optimized by the use of MNDO calcs. The optimized cis-trans conformation is in good agreement with the x-ray exptl. data concerning the polymer. The calculated low energy barriers around the P-N bond along the chain axis can explain the flexibility of the phosphazene backbone and the elastomeric properties of the polymers. The MNDO calcn. of the harmonic force field of Cl2(O)PN(PCl2N)6PCl3 is in reasonable agreement with the exptl. values for I in solution as well as in the amorphous phase. The normal coordinate analyses of I were undertaken according to several structural hypotheses using a force field derived from linear short-chain molcs. The Raman spectra of I in solution or in the amorphous phase are in reasonable agreement with the vibrational frequencies calculated for a planar cis-trans macromol. and have a striking resemblance with those of linear short-chain analogs Cl2(O)PN(PCl2N)_nPCl3 (n = 1, 2). The Raman and IR

spectra of the substituted polymers II and III are dominated by the characteristic features of the chain substituents.

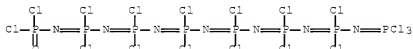
IT 153005-42-6

RL: PRP (Properties)

(conformational stability and force field of, MNDO calcns. and vibrational spectra and normal coordinate analyses of)

RN 153005-42-6 CAPLUS

CN Phosphorimidic trichloride, [P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]phosphinimyl]phosphinimyl]phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)



L141 ANSWER 16 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1992:600743 CAPLUS Full-text

DOCUMENT NUMBER: 117:200743

ORIGINAL REFERENCE NO.: 117:34489a,34492a

TITLE: Conformational stability and force field of short-chain linear chlorophosphazenes: MNDO calculations, phosphorus-31 NMR, vibrational spectra, and normal coordinate analyses of Cl3PN(PCl2N)nP(O)Cl2 and [Cl3PN(PCl2N)nPCl3][PCl6] (n = 1, 2)

AUTHOR(S): Bougeard, Daniel; Bremard, Claude; De Jaeger, Roger; Lemmouchi, Yahia

CORPORATE SOURCE: Lab. Spectrochim. Infrarouge Raman, Univ. Sci. Technol. Lille, Villeneuve d'Ascq, 59655, Fr.

SOURCE: Journal of Physical Chemistry (1992), 96(22), 8850-5
CODEN: JPCHAX; ISSN: 0022-3654

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The Raman spectra of Cl3PN(PCl2N)nP(O)Cl2 and [Cl3PN(PCl2N)nPCl3]+PCl6- (n = 1, 2) were recorded in the solid and liquid states at different temps. The qual. depolarization ratios were obtained in the liquid phase. A 31P NMR study for the mol. compds. showed a coalescence phenomenon near 220 K. The potential energy around the PN bonds for the Cl3PN(PCl2N)P(O)Cl2 mol. and [Cl3PN(PCl2N)2PCl3]+ cation are derived from MNDO calcns. The stable conformations are trans-cis for Cl3PN(PCl2N)P(O)Cl2 and [Cl3PN(PCl2N)2PCl3]+. The calculated structural parameters agree well with the x-ray exptl. data. The frequencies obtained by normal coordinate anal. are in good agreement with the observed ones. The MNDO calcn. of the harmonic force field is in reasonable agreement with the exptl. values. The force constant values assigned to torsional modes around the PN bonds correspond to low barriers for the internal rotations. The easy internal rotation around the P-N and P-N bonds can explain the flexibility of the phosphazene backbone and the elastomeric properties of the phosphazene polymers.

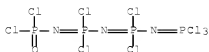
IT 36775-73-2

RL: PRP (Properties)

(conformational stability and force field of)

RN 36775-73-2 CAPLUS

CN Phosphoramidic dichloride, [dichloro[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



L141 ANSWER 17 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1992:84220 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 116:84220

ORIGINAL REFERENCE NO.: 116:14371a,14374a

TITLE: Synthesis of poly(dichlorophosphazenes) from
Cl₃P:NP(O)Cl₂. 1. Kinetics and reaction mechanism
D'Halluin, G.; De Jaeger, R.; Chambrette, J. P.;
Potin, P.

CORPORATE SOURCE: Lab. Spectrochim. Infrarouge Raman, Univ. Sci. Tech.
Lille Flandres Artois, Villeneuve, 59655, Fr.

SOURCE: Macromolecules (1992), 25(4), 1254-8
CODEN: MAMOBX; ISSN: 0024-9297

DOCUMENT TYPE: Journal

LANGUAGE: English

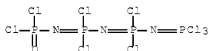
AB Type Cl₃P:N(Cl₂P:N)n-1P(O)Cl₂ poly(dichlorophosphazenes) were prepared by solution polycondensation of P-trichloro-N-(dichlorophosphoryl)monophosphazene, Cl₃P:NP(O)Cl₂. Monitoring the reaction using ³¹P-NMR spectroscopy allowed the determination of an order of magnitude of the reactivity for the species n = 1-4 and to propose a mechanism. The results enabled the preparation of a range of polymers with intrinsic viscosities in THF at 30° of 10-72 mL/g, and to establish the Mark-Houwink relationship in the same solvent.

IT 36775-73-2P 81005-15-4P

RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in polymerization of
trichloro(dichlorophosphoryl)monophosphazene, phosphorus-31 NMR
spectrum in relation to)

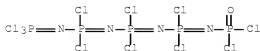
RN 36775-73-2 CAPLUS

CN Phosphoramidic dichloride,
[dichloro[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene)- (9CI) (CA INDEX NAME)



RN 81005-15-4 CAPLUS

CN Phosphorimidic trichloride, [P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]phosphinimyl)- (9CI) (CA INDEX NAME)



L141 ANSWER 18 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1991:30434 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 114:30434

ORIGINAL REFERENCE NO.: 114:5231a,5234a

TITLE: Bond alternation in phosphonitrilic compounds

AUTHOR(S): Ferris, Kim F.; Risser, S. M.

CORPORATE SOURCE: Mater. Chem. Sci. Cent., Pac. Northwest Lab.,
Richland, WA, 99352, USA

SOURCE: Chemical Physics Letters (1990), 174(3-4), 333-7

CODEN: CHPLBC; ISSN: 0009-2614

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The mol. structures of linear phosphonitrilic compds. demonstrate a dependence on the number of repeat units and on ligand electronegativity. Recent structural measurements of short length phosphonitrilic mols. have indicated the presence of bond alternation, in contrast to previous x-ray studies of the polymer itself. Ab initio electronic structure calcns. have been performed on a series of short phosphonitrilic compds. H3P (NPH2)nNH, n = 1-4, which show that bond alternation does exist for the small chain compds. The behavior of the alternation as the number of repeat units is increased suggests that alternation continues into the finite limit.

IT 131357-61-4

RL: PRP (Properties)
(bond alternation in)

RN 131357-61-4 CAPLUS

CN 2,4,6,8-Tetraaza-1,3,5,7,9-pentaphosphanona-1,3,5,7-tetraene, 9-imino-
(CA INDEX NAME)



L141 ANSWER 19 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1988:631272 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 109:231272

ORIGINAL REFERENCE NO.: 109:38261a,38264a

TITLE: Substitution reaction of hexachlorocyclotriphosphazene with trimethylaluminum

AUTHOR(S): Jackson, Logan A.; Harris, Paul J.

CORPORATE SOURCE: Dep. Chem., Virginia Polytech. Inst. and State Univ.,
Blacksburg, VA, 24061, USA

SOURCE: Inorganic Chemistry (1988), 27(24), 4338-43

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 109:231272

AB The title reaction gave hexamethylcyclotriphosphazene and a ring-opened linear phosphazene salt. The substitution pathway was determined by monitoring the reactions of several methylchlorocyclotriphosphazenes with Me3Al by gas

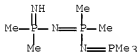
chromatog. and ^{31}P NMR spectroscopy. The reaction proceeded via both geminal and nongeminal substitution pathways, depending on the species undergoing substitution. The degree of ring opening decreased with increasing Me substitution of the phosphazene ring.

IT 117146-21-1P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 117146-21-1 CAPLUS

CN 3,5-Diaza-2,4,6-triphasphahepta-2,4-diene, 6-imino-2,2,4,4,6-pentamethyl-, hydrochloride (1:1) (CA INDEX NAME)



● HCl

L141 ANSWER 20 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1985:488398 CAPLUS Full-text

DOCUMENT NUMBER: 103:88398

ORIGINAL REFERENCE NO.: 103:14217a,14220a

TITLE: Conformation, bonding, and flexibility in short-chain linear phosphazenes

AUTHOR(S): Allcock, Harry R.; Tollefson, Norris M.; Arcus, Robert A.; Whittle, Robert R.

CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park, PA, 16802, USA

SOURCE: Journal of the American Chemical Society (1985), 107(18), 5166-77

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ten linear, short-chain phosphazenes were prepared and their structure determined as models for 3 classes [i.e. Cl-, (phen)alkoxy-, and amino-substituted] of phosphazene linear high polymers. X-ray diffraction results from studies of $\text{OPCl}_2\text{NFCl}_3$ [13966-08-0], $\text{OP(OPh)}_2\text{NFCl}_3$ [15241-20-0], $\text{OP(NHPh)}_2\text{NFCl}_3$ [97150-00-0], $\text{OP(NHPh)}_2\text{NFCl}_3$ [97150-01-1], and $[\text{Cl}_3\text{PNFCl}_2\text{NFCl}_2\text{NFCl}_3]\text{PCl}_6$ [21246-63-9] suggested different values for bond angles and bond length than have been used previously in structural studies of the high polymers. The P-N bond lengths in the short-chain species differed by ≤ 0.07 Å within each mol., and planar skeletal conformations were preferred, especially cis-trans planar. The evidence suggested that, although the mols. were stabilized by electron delocalization, the conformations originated from intramol. nonbonding interactions. The short phosphazene chains stacked in the crystal lattice in a parallel arrangement analogous to that expected in polymer microcrystallites. Comparisons between the ^{31}P NMR shifts of the short chain species and the corresponding high polymers revealed a close similarity between the electronic and structural environments of the middle units in the short chain species and in the repeating units of the high polymers.

IT 81055-15-4P 97149-36-7P

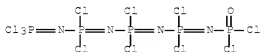
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and structure of, as model for high-mol.-weight linear

phosphazene

polymers)

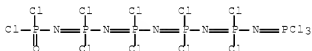
RN 81005-15-4 CAPLUS

CN Phosphorimidic trichloride, [P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)



RN 97149-96-7 CAPLUS

CN Phosphorimidic trichloride, [P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)



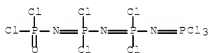
IT 36775-73-2

RL: PRP (Properties)

(structure of, as model for high-mol.-weight linear phosphazene polymers)

RN 36775-73-2 CAPLUS

CN Phosphoramidic dichloride, [dichloro[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



L141 ANSWER 21 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1983:64450 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 98:64450

ORIGINAL REFERENCE NO.: 98:9709a,9712a

TITLE: Phosphorus-31 NMR studies of linear thiophosphorylphosphazenes

AUTHOR(S): Schilling, Gerhard; Rabener, Claus W.; Lehr, Wendel
CORPORATE SOURCE: Org. Chem. Anorg. Chem. Inst., Univ. Heidelberg, Heidelberg, D-6900, Fed. Rep. Ger.

SOURCE: Zeitschrift fuer Naturforschung, Teil B: Anorganische Chemie, Organische Chemie (1982), 37B(11), 1489-90
CODEN: ZNBAD2; ISSN: 0340-5087

DOCUMENT TYPE: Journal

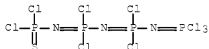
LANGUAGE: German

AB The ^{31}P NMR spectra of $\text{PCl}_3=\text{N}[\text{PCl}_2=\text{N}]_n\text{PCl}_2=\text{S}$ ($n = 0-2$) undergo significant changes in $\nu/2$ and 4JPP when the temperature is lowered. The effects are discussed in terms of spin-lattice relaxation effects which may reflect the mobility of P.

IT 36131-16-5 84159-32-0
RL: PRP (Properties)
(NMR of)

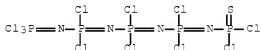
RN 36131-16-5 CAPLUS

CN Phosphorimidic trichloride, $[\text{P},\text{P}$ -dichloro- N - $[\text{P},\text{P}$ -dichloro- N -(dichlorophosphinothioyl)phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)



RN 84159-32-0 CAPLUS

CN Phosphoramidothioic dichloride, [dichloro[[dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



L141 ANSWER 22 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1982:114734 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 96:114734

ORIGINAL REFERENCE NO.: 96:18685a,18688a

TITLE: Phosphorus-31 NMR studies on linear phosphorylphosphazenes

AUTHOR(S): Schilling, Gerhard; Rabener, Claus W.; Lehr, Wendel

CORPORATE SOURCE: Anorg.-Chem. Org.-Chem. Inst., Univ. Heidelberg, Heidelberg, D-6900, Fed. Rep. Ger.

SOURCE: Zeitschrift fuer Naturforschung, Teil B: Anorganische Chemie, Organische Chemie (1982), 37B(1), 38-42
CODEN: ZNBAD2; ISSN: 0340-5087

DOCUMENT TYPE: Journal

LANGUAGE: German

AB The ^{31}P NMR spectra of $\text{PCl}_3(\text{NPCl}_2)_n\text{O}$ ($n = 1, 2, 3, 4$) do not indicate any rotational isomers at 183-413 K. The values for $\nu/2$ depend on the viscosity of the solvent and the temperature of the sample. They are reduced to T1 relaxation effects, where the spin rotational mechanism may be dominant in the case of the small mols. and the PCl_3 group.

IT 36775-73-2 81065-15-4

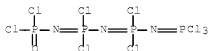
RL: PRP (Properties)

(NMR of phosphorus-31 in)

RN 36775-73-2 CAPLUS

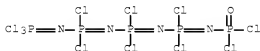
CN Phosphoramidic dichloride,

[dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



RN 81005-15-4 CAPLUS

CN Phosphorimidic trichloride, [P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinyl)phosphinimyl]phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)



L141 ANSWER 23 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1980:621110 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 93:221110

ORIGINAL REFERENCE NO.: 93:35317a,35320a

TITLE: Synthesis of alkylphosphazene high polymers via the polymerization of

monoalkylpentachlorocyclotriphosphazenes

AUTHOR(S): Allcock, Harry R.; Ritchie, Robert J.; Harris, Paul J.
CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park, PA, 16802, USA

SOURCE: Macromolecules (1980), 13(6), 1332-8

CODEN: MAMOBX; ISSN: 0024-9297

DOCUMENT TYPE:

Journal

LANGUAGE: English

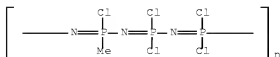
AB High-mol. weight polyphosphazenes were prepared by thermal polymerization of the cyclotriphosphazenes N3P3Cl5R (R = Me, Et, Pr, Bu). Bulky groups (iso-Pr, tert-Bu) retarded polymerization and sensitized the system to decomposition during polymerization. Hydrolytically stable elastomers were prepared by replacement of Cl in the polymers with CF3CH2O or PhO groups. Their structures were determined by comparison with the model cyclotriphosphazenes N3P3(OCH2CF3)5R or N3P3(OPh)5R.

IT 75132-85-3P

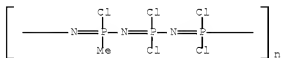
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, by thermal polymerization)

RN 75132-85-3 CAPLUS

CN Poly[nitrilo(chloromethylphosphoranylidene)nitrilo(dichlorophosphoranylidene)nitrilo(dichlorophosphoranylidene)] (9CI) (CA INDEX NAME)



IT 75132-85-3DDP, reaction products with phenoxide and trifluoroethoxide
 RL: SPN (Synthetic preparation); PREP (Preparation) (rubber, preparation and properties. of)
 RN 75132-85-3 CAPLUS
 CN Poly[nitrilo(chloromethylphosphoranylidene)nitrilo(dichlorophosphoranylidene)nitrilo(dichlorophosphoranylidene)] (9CI) (CA INDEX NAME)



L141 ANSWER 24 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1978:37894 CAPLUS Full-text

DOCUMENT NUMBER: 88:37894

ORIGINAL REFERENCE NO.: 88:5957a,5960a

TITLE: The deprotonation and rearrangement of N-methyl methylphosphazanium quaternary salts: a novel synthetic route to cyclic azaphosphorins

AUTHOR(S): Oakley, Richard T.; Paddock, Norman L.

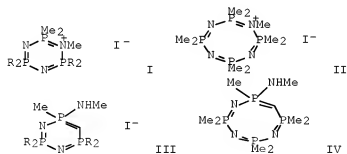
CORPORATE SOURCE: Dep. Chem., Univ. British Columbia, Vancouver, BC, Can.

SOURCE: Canadian Journal of Chemistry (1977), 55(20), 3651-63
 CODEN: CJCHAG; ISSN: 0008-4042

DOCUMENT TYPE: Journal

LANGUAGE: English

GI



AB The N-Me methylphosphazanium salts I (R = Me, Ph) and II can be deprotonated by a variety of bases to yield the novel azaphosphorins III and IV resp., formed by a rearrangement in which the methylated nitrogen atom is displaced from the PN ring by the initially produced exocyclic methylene group. The ¹H NMR spectra of the azaphosphorins indicate a rapid proton exchange between the endocyclic carbon and the exocyclic nitrogen, which can be slowed by the addition of an auxiliary base. When Me₃COK reacts with the quaternary salts,

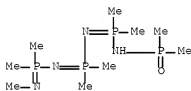
nucleophilic attack competes with proton removal, and the linear oxides $\text{MeNH(PMe}_2\text{)}_n\text{N(PMe}_2\text{)}_m$ ($n = 2-4$) were isolated from these reactions. Some reactions of III ($R = \text{Me}$) and IV were discussed. Model calcs. of π -electron energies suggest that both the azaphosphorin rearrangement and the proton exchange reactions depend on the relative orbital electroneg. of the ring and exocyclic atoms, the less electroneg. atom being more stable in the endocyclic position.

IT 57080-77-0P 57080-78-1P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

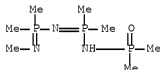
RN 57080-77-0 CAPLUS

CN Phosphinic amide, N-[[[[[dimethyl(methylamino)phosphoranylidene]amino]dimethylphosphoranylidene]amino]dimethylphosphoranylidene]-P,P-dimethyl- (9CI)
(CA INDEX NAME)



RN 57080-78-1 CAPLUS

CN Phosphinic amide, N-[[[dimethyl(methylamino)phosphoranylidene]amino]dimethylphosphoranvlydene]-P,P-dimethyl- (9CI) (CA INDEX NAME)



L141 ANSWER 25 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1977:501818 CAPLUS Full-text

DOCUMENT NUMBER: 87:101818

ORIGINAL REFERENCE NO.: 87:16151a

TITLE: Conformational analysis of phosphazenes. A force field for the calculation of the molecular structures of halophosphazenes

AUTHOR(S): Boyd, Richard H.; Kesner, Laya

CORPORATE SOURCE: Dep. Mater. Sci. Eng., Univ. Utah, Salt Lake City, UT,
USA

SOURCE: Journal of the American Chemical Society (1977),
99(13): 4248-56

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Phosphazenes ($-N:PR_2-$)_n are a series of compds. that include rings of various sizes and conformations and linear high-mol.-weight polymers which the formal valence structure presents the possibility of π -electron delocalization. An attempt was made to see if phosphazene properties could be accounted for in terms of a conventional conformational model in which the mols. are subject to

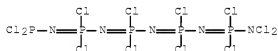
the influences of the energetics of bond twisting, bending, and stretching (and nonbonded interactions), but in which there are not further effects on bonding in various size mols. than from these sources (i.e., the individual bond energies do not depend on the size of the mol.). The geometries, energies, and vibrational frequencies of a number of cyclic perhalophosphazenes were satisfactorily accounted for by such a model. A force field for conformational calcs. on chloro- and fluorophosphazenes is presented. Important and necessary features of the model include a 2-fold torsional potential with a low barrier (.apprx.1.4 kcal/mol) and a soft bending constant at the PNP valence angle (both absolutely and relative to the NPN angle).

IT 63722-41-8 63722-42-9

RL: PRP (Properties)
(conformation of, calcn. of)

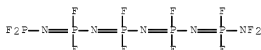
RN 63722-41-8 CAPLUS

CN Phosphoramidimidic dichloride,
[dichloro[[dichloro(dichloroamino)phosphoranylidene]amino]phosphoranylidene][P,P-dichloro-N-(dichlorophosphino)phosphinimyl]- (9CI) (CA INDEX NAME)



RN 63722-42-9 CAPLUS

CN Phosphoramidimidic difluoride, N-
[[[(difluoroamino)difluorophosphoranylidene]amino]difluorophosphoranylidene]-N'-[N-(difluorophosphino)-P,P-difluorophosphinimyl]- (9CI) (CA INDEX NAME)



L141 ANSWER 26 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1975:514560 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 83:114560

ORIGINAL REFERENCE NO.: 83:18003a,18006a

TITLE: Reaction of N-methylphosphazanium halides with bases.
Phosphazene-phosphorin rearrangement

AUTHOR(S): Calhoun, Harry P.; Oakley, Richard T.; Paddock, Norman L.

CORPORATE SOURCE: Dep. Chem., Univ. British Columbia, Vancouver, BC, Can.

SOURCE: Journal of the Chemical Society, Chemical Communications (1975), (11), 454-5

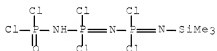
CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

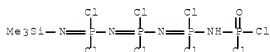
LANGUAGE: English

GI For diagram(s), see printed CA Issue.

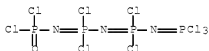
RN 54922-46-2 CAPLUS
 CN Phosphoramidic dichloride,
 [dichloro[[dichloro[(trimethylsilyl)amino]phosphoranylidene]amino]phosphor
 anylidene]- (9CI) (CA INDEX NAME)



RN 54922-47-3 CAPLUS
 CN Phosphoramidic dichloride,
 [dichloro[[dichloro[[dichloro[(trimethylsilyl)amino]phosphoranylidene]amin
 o]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



IT 36775-73-2P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of, from phosphorus pentachloride and
 phosphorylsilyl-phosphazene)
 RN 36775-73-2 CAPLUS
 CN Phosphoramidic dichloride,
 [dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]am
 ino]phosphoranylidene]- (9CI) (CA INDEX NAME)



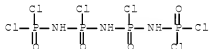
L141 ANSWER 28 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 1975:92457 CAPLUS [Full-text](#)
 DOCUMENT NUMBER: 82:92457
 ORIGINAL REFERENCE NO.: 82:14733a,14736a
 TITLE: Oligomeric μ -imidophosphoric acid chlorides and
 amides
 AUTHOR(S): Riesel, L.; Somieski, R.
 CORPORATE SOURCE: Sek. Chem. Tech., Univ. Dresden, Dresden, Ger. Dem.
 Rep.
 SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie
 (1975), 412(3), 246-50
 CODEN: ZAACAB; ISSN: 0044-2313
 DOCUMENT TYPE: Journal
 LANGUAGE: German

AB Oligomeric μ -imidophosphoric acid chlorides, $\text{Cl}_2(\text{O})\text{P}[\text{NHP}(\text{O})\text{Cl}]_n\text{Cl}$, ($n = 2, 3$) are obtained by solvolysis of the linear phosphorylchlorophosphazenes, $\text{Cl}_2(\text{O})\text{P}-[\text{N}:\text{PCl}_2]_n\text{Cl}$, with the stoichiometric amount of anhydrous HCO_2H . The chlorides react with NH_3 to form the amides. The amides are characterized by paper and gel chromatography. The course and rate of hydrolysis of diimidotriphosphoric acid pentaamide depend on pH.

IT 55565-67-8F
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)

RN 55565-67-8 CAPLUS

CN Triimidotetraphosphoryl chloride (9CI) (CA INDEX NAME)



L141 ANSWER 29 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1973:526889 CAPLUS Full-text

DOCUMENT NUMBER: 79:126889

ORIGINAL REFERENCE NO.: 79:20607a,20610a

TITLE: Phosphonitrilic chloride. XX. Hydrolysis of linear phosphazene dichloride oligomers and polycondensation of the product obtained by hydrolysis

AUTHOR(S): Kajiwara, Meisetsu; Saito, Hajime; Saito, Tadashi

CORPORATE SOURCE: Fac. Eng., Nagoya Univ., Nagoya, Japan

SOURCE: Nippon Kagaku Kaishi (1973), (8), 1432-6

CODEN: NKAKB8; ISSN: 0369-4577

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB The hydrolysis of terminal Cl atoms in linear phosphazene dichloride oligomers $[\text{Cl}_4\text{P}(\text{NPCl}_2)_3\text{nCl}]$ (I) prepared by reacting $(\text{NPCl}_2)_3$ with PCl_5 occurred more rapidly than that of middle Cl atoms. The hydrolysis of middle Cl atoms of I gave $\text{H}_2\text{O}_3\text{P}[\text{NHP}(\text{O})(\text{OH})]_3\text{nOH}$ which was again hydrolyzed, giving $(\text{NH}_4)_3\text{PO}_4$. The hydrolysis of I was a first-order reaction and the apparent activation energy was 14 kcal/mole, resp., II polycondensation occurred on heating, with evolution of H_2O and NH_3 .

IT 43225-78-1 50313-88-7

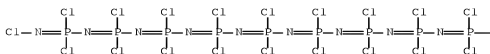
RL: RCT (Reactant); RACT (Reactant or reagent)

(hydrolysis of)

RN 43225-78-1 CAPLUS

CN Phosphoramidimidic dichloride,
 [dichloro[[dichloro[[dichloro[[dichloro[(hexachlorodiphosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]amino]phosphoranylidene]amino]phosphoranylidene]-N'-[P,P-dichloro-N-[P,P-dichloro(trichlorophosphinimyl)phosphinimyl]phosphinimyl]- (9CI) (CA INDEX NAME)

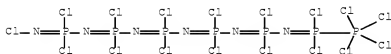
PAGE 1-A



PAGE 1-B



RN 50313-88-7 CAPLUS
 CN Phosphoramidimidic dichloride,
 [dichloro[[dichloro[(hexachlorodiphosphoranylidene)amino]phosphoranylidene
]amino]phosphoranylidene][P,P-dichloro-N-
 (trichlorophosphinimyl)phosphinimyl]- (9CI) (CA INDEX NAME)



L141 ANSWER 30 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1973:413050 CAPLUS Full-text

DOCUMENT NUMBER: 79:13050

ORIGINAL REFERENCE NO.: 79:2065a,2068a

TITLE: Thermolysis of phosphorus(V) sulfur(VI) nitride
 halides

AUTHOR(S): Haubold, W.; Fluck, E.; Becke-Goehring, M.

CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Stuttgart, Stuttgart, Fed.
 Rep. Ger.

SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie
 (1973), 397(3), 269-78
 CODEN: ZAACAB; ISSN: 0044-2313

DOCUMENT TYPE: Journal

LANGUAGE: German

GI For diagram(s), see printed CA Issue.

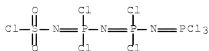
AB The thermolysis of R2PCl:NSO2X (I; R = Cl, Me, and Ph; X = F and Cl),
 R1(PCl2:N)nSO2Cl (II; R1 = Cl3P:N, n = 1, 2), R2PCl:NPCl2:NSO2Cl (III),
 R1CCl:NPCl2:NSO2Cl, R2Cl:NPCl2:NSO2Cl, R1PCl2:NSO2Ph, and R1QR1 (IV; Q = SO2,
 PCl2:NSO2N:PCl2) was studied. I decomposed to R2POCl and (NSOX)n. In the
 pyrolysis of II and III, V and VI were formed among other compds., pyrolysis
 of the C-containing compds. gave OCl3 and R1SO2Cl. The relatively higher
 stability of the S-N than that of the P-N bond was also confirmed in the
 pyrolysis of IV. IV (Q = PCl2:NSO2N:PCl2) gave R1SO2Cl, R1POCl2 and VI. The
 compds. were characterized by 31P-NMR spectra.

IT 25530-07-8

RL: RCT (Reactant); RACT (Reactant or reagent)
 (thermal decomposition of)

RN 25530-07-8 CAPLUS

CN Sulfamoyl chloride, [dichloro[[dichloro[(trichlorophosphoranylidene)amino]
 phosphoranylidene]amino]phosphoranylidene]- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 31 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1972:508929 CAPLUS Full-text

DOCUMENT NUMBER: 77:108929

ORIGINAL REFERENCE NO.: 77:17913a,17916a

TITLE: Preparation of a new inorganic ring system containing one sulfur, two phosphorus, and three nitrogen atoms in the ring

AUTHOR(S): Baalman, H. H.; Velvis, H. P.; Van de Grampel, J. C. Lab. Anorg. Chem., Rijksuniv., Groningen, Neth.

CORPORATE SOURCE: Recueil des Travaux Chimiques des Pays-Bas (1972), 91(7), 935-41

SOURCE: CODEN: RTCPA3; ISSN: 0165-0513

DOCUMENT TYPE: Journal

LANGUAGE: English

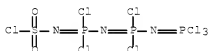
AB The thermal decomposition at low pressure of Cl₃P:NPCl₂:NSO₂Cl, Cl₃P:NPCl₂:NPCl₂:NSO₂Cl and mixts. of these compds. with Cl₃P:NSO₂Cl, are reported. In all cases inorg. heterocyclics, containing NP and/or S atoms, were obtained. The isolation of (NPCl₂)₂NSOCl is described. The ir spectra of α-(NSOCl)₃, NPCl₂(NSOCl)₂, (NPCl₂)₂NSOCl, and (NPCl₂)₃ are discussed.

IT 25530-07-8

RL: RCT (Reactant); RACT (Reactant or reagent)
(thermal decomposition of (trichlorophosphoranylidene)sulfamoyl chloride and)

RN 25530-07-8 CAPLUS

CN Sulfamoyl chloride, [dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 32 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1972:487727 CAPLUS Full-text

DOCUMENT NUMBER: 77:87727

ORIGINAL REFERENCE NO.: 77:14473a,14476a

TITLE: Synthesis and study of alkoxytriphosphazophosphonyl compounds

AUTHOR(S): Volodin, A. A.; Kireev, V. V.; Korshak, V. V.; Filippov, E. A.

CORPORATE SOURCE: USSR

SOURCE: Zhurnal Obshchei Khimii (1972), 42(3), 510-14

CODEN: ZOKHA4; ISSN: 0044-460X

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Treatment of Cl(PCl₂:N)3POCl₂ with ROH and Et₃N gave oily, undistillable HO[(RO)₂P:N)3P(O)(OR)₂ with R = Bu, iso-Bu, iso-C₈H₁₇, MeOCH₂CH₂ or ClCH₂CH₂.

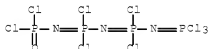
NMR and ir spectra were used for structure confirmation. The products reacted with Ph_3SiCl at $>90^\circ$ with loss of RCl and formation of OSiPh_3 analogs, easily hydrolyzable oils, which gave silanol and a dibasic acid mixture, examination of which showed that the replacement of RO groups by OSiPh_3 and their subsequent hydrolytic removal occurred at central as well as terminal P atoms of the mol.

IT 36775-73-2

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with aliphatic alcs.)

RN 36775-73-2 CAPLUS

CN Phosphoramidic dichloride,
[dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]- (9CI) (CA INDEX NAME)



L141 ANSWER 33 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1972:468278 CAPLUS Full-text

DOCUMENT NUMBER: 77:68278

ORIGINAL REFERENCE NO.: 77:11235a,11238a

TITLE: Nuclear magnetic resonance of phosphorus compounds.
XXVIII. ^{31}P -NMR spectra of phosphorus(V) nitride
chlorides and phosphorus(V) sulfur(VI) nitride
chlorides

AUTHOR(S): Haubold, Wolfgang; Fluck, Ekkehard

CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Stuttgart, Stuttgart, Fed.
Rep. Ger.

SOURCE: Zeitschrift fuer Naturforschung, Teil B: Anorganische
Chemie, Organische Chemie, Biochemie, Biophysik,
Biologie (1972), 27(4), 368-76
CODEN: ZENBAX; ISSN: 0044-3174

DOCUMENT TYPE: Journal

LANGUAGE: German

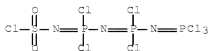
AB Phosphorus(V) sulfur(VI) nitride chlorides $\text{RR}_1\text{P}(\text{Cl})\text{:NSO}_2\text{Cl}$ [$\text{R} = \text{Cl}, \text{Me}, \text{or Ph}$;
 $\text{R}_1 = \text{Cl}, \text{Me}, \text{Ph}, \text{N:PCl}_3, \text{N:PCl}_2\text{N:PCl}_3, \text{N:PCl}(\text{N:PCl}_3)_2, \text{N:PPh}_2\text{Cl}, \text{N:CClN:PCl}_3$,
or $\text{N:C}(\text{N:PCl}_3)_2$] were prepared by reaction of $[\text{Cl}_2\text{-PRR}_1]\text{Cl}$ or
hexachlorophosphates with $\text{H}_2\text{NSO}_2\text{Cl}$ with cleavage of HCl . Thus, $\text{H}_2\text{NSO}_2\text{Cl}$ was
added to $[\text{Cl}_3\text{PN:PCl}_3]\text{Cl}$ in CH_2Cl_2 , the mixture refluxed 3 hr with removal of
 HCl and the solvent and distilled at 50° to give 100%, $\text{Cl}_3\text{P:NPCl}_2\text{:NSO}_2\text{Cl}$. The
NMR spectra of these compds. and of phosphorus(V) nitride chlorides were
compared.

IT 25530-07-8

RL: PRP (Properties)
(NMR of)

RN 25530-07-8 CAPLUS

CN Sulfamoyl chloride, [dichloro[[dichloro[(trichlorophosphoranylidene)amino]
phosphoranylidene]amino]phosphoranylidene]- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 34 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1972:153839 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 76:153839

ORIGINAL REFERENCE NO.: 76:25077a,25080a

TITLE: Linear and cyclic chlorophosphazenes

AUTHOR(S): Roesky, Herbert W.

CORPORATE SOURCE: Chem. Inst., Univ. Frankfurt, Frankfurt/M., Fed. Rep. Ger.

SOURCE: Chemische Berichte (1972), 105(4), 1439-45

CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal

LANGUAGE: German

AB S:PCl₂(N:-PCl₂)_nN(R)SiMe₃ (I; R = H or Me, n = 2 or 3) were prepared in 90-4% yield by reaction of S:PCl₂(N:PCl₂)_mN:PCl₃ [m = 1 or 2 (II), resp.] with Me₃SiN(R)SiMe₃. II was prepared from I (R = H, n = 2) and PCl₅. I (R = Me, n = 3) was heated in vacuo within 24 hr to .apprx.100%, and the temperature was slowly increased to 170° to give 35% 2,4,4,6,6-pentachloro-1-methyl-2-thioxo-1,3,5-2,4,6- triazatriphosphor(2,4,6-PV)ine. IR, 1H- and 31P-NMR spectroscopic data were reported.

IT 36131-13-2P 36131-15-4P 36131-16-5P

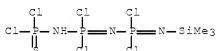
RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of)

RN 36131-13-2 CAPLUS

CN Phosphoramidothioic dichloride,

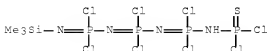
[dichloro{[dichloro{(trimethylsilyl)amino}phosphoranylidene]amino}phosphoranylidene]- (9CI) (CA INDEX NAME)



RN 36131-15-4 CAPLUS

CN Phosphoramidothioic dichloride,

[dichloro{[dichloro{[dichloro{(trimethylsilyl)amino}phosphoranylidene]amino}phosphoranylidene]amino}phosphoranylidene]- (9CI) (CA INDEX NAME)



RN 36131-16-5 CAPLUS

CN Phosphorimidic trichloride, [P,P-dichloro-N-[P,P-dichloro-N-(dichlorophosphinothioyl)phosphinimyl]phosphinimyl]- (9CI) (CA INDEX

—Cl
—Cl

L141 ANSWER 36 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1971:93923 CAPLUS Full-text

DOCUMENT NUMBER: 74:93923

ORIGINAL REFERENCE NO.: 74:15227a,15230a

TITLE: Phosphorus compounds. 59. Preparation of fluorocyclotriphosphazenes with phosphazene side chains

AUTHOR(S): Roesky, Herbert W.; Grosse-Boewing, Walter; Niecke, Edgar

CORPORATE SOURCE: Anorg.-Chem. Inst., Univ. Goettingen, Goettingen, Fed. Rep. Ger.

SOURCE: Chemische Berichte (1971), 104(2), 653-60

CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal

LANGUAGE: German

GI For diagram(s), see printed CA Issue.

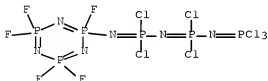
AB The 6-membered 2,4,4,6,6-pentafluoro-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-t
riazatriphosphorines (I) with the side chains R = N:PX₂NHSiMe₃, n:PX₂N:PCl₃,
N:-PX₂N:PCl₂NHSiMe₃, or N:PX₂N:PCl₂N:PCl₃ (where X = Cl or F) were prepared
by extending the side chain alternately with (Me₃Si)2NH and PCl₅. Similarly
prepared were the 10- and 12-membered homologs with phosphazene side chains.
The compds. were characterized by ir, ³¹P-, and ¹⁹F-NMR spectra.

IT 31264-30-9P 31264-31-0P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

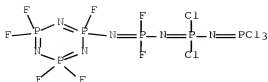
RN 31264-30-9 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2-
[[[dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]a
mino]phosphoranylidene]amino]-2,4,4,6,6-pentafluoro-2,2,4,4,6,6-hexahydro-
(8CI) (CA INDEX NAME)



RN 31264-31-0 CAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2-
[[[dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]a
mino]phosphoranylidene]amino]-2,4,4,6,6-pentafluoro-2,2,4,4,6,6-hexahydro-
(8CI) (CA INDEX NAME)



L141 ANSWER 37 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1971:41469 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 74:41469

ORIGINAL REFERENCE NO.: 74:6685a,6688a

TITLE: Evaluation of phosphorus nitrogen compounds as fertilizers

AUTHOR(S): Wakefield, Zachary T.; Allen, Seward E.; McCullough, John F.; Sheridan, Richard C.; Kohler, John J.

CORPORATE SOURCE: Natl. Fert. Dev. Cent., Tennessee Valley Auth., Muscle Shoals, AL, USA

SOURCE: Journal of Agricultural and Food Chemistry (1971), 19(1), 99-103

CODEN: JAFCAU; ISSN: 0021-8561

DOCUMENT TYPE: Journal

LANGUAGE: English

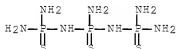
AB Thirty-four P and N compds. were prepared and compared in the greenhouse as high-anal. sources of fertilizer N and P for corn. The compds. included phosphonitrilic derivs., metaphosphimates, metaphosphates, S-containing compds., and amido- and imidophosphates. The metaphosphates, amidophosphate, thioamidophosphates, and phosphoryl triamide were excellent sources of both N and P, but metaphosphimates were poor sources. Several of the S compds. were toxic in early growth stages, but thereafter were effective sources of plant nutrients. Of the phosphonitrilic derivs., only phosphonitrilic hexaamide was an effective source of both N and P.

IT 31078-47-4

RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses) (fertilizers, for corn)

RN 31078-47-4 CAPLUS

CN Thiodiimidotriphosphoramidate ([(H2N)2P(S)(NH)2P(S)(NH2)) (9CI) (CA INDEX NAME)



L141 ANSWER 38 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1970:420978 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 73:20978

ORIGINAL REFERENCE NO.: 73:3479a,3482a

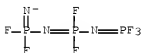
TITLE: New anionic derivative of P3N3F6

AUTHOR(S): Douglas, W. M.; Cooke, M.; Lustig, M.; Ruff, J. K.

CORPORATE SOURCE: Dep. of Chem., Univ. of Georgia, Athens, GA, USA

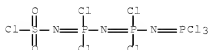
SOURCE: Inorganic and Nuclear Chemistry Letters (1970), 6(4), 409-11

CODEN: INUCAF; ISSN: 0020-1650
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI For diagram(s), see printed CA Issue.
 AB CsF reacts with the cyclic phosphonitrile fluoride trimer, P₃N₃F₆, in anhydrous MeCN to give CsP₃N₃F₇. Possible structures for the anion P₃N₃F₇⁻ are linear PF₃:NPF₂:NPF₂:N⁻ or cyclic (I).
 IT 27321-60-4F
 RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of)
 RN 27321-60-4 CAPLUS
 CN Phosphorimidic trifluoride, [N-(P,P-difluorophosphinimyl)-P,P-difluorophosphinimyl]⁻, ion(1-), cesium (8CI) (CA INDEX NAME)



● Cs⁺

L141 ANSWER 39 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 1970:7735 CAPLUS Full-text
 DOCUMENT NUMBER: 72:7735
 ORIGINAL REFERENCE NO.: 72:1421a,1424a
 TITLE: Phosphorus-31 N.M.R. spectroscopy. IV
 AUTHOR(S): Latscha, Hans P.; Hormuth, P. B.; Vollmer, H.
 CORPORATE SOURCE: Anorg.-Chem. Inst., Univ. Heidelberg, Heidelberg, Fed. Rep. Ger.
 SOURCE: Zeitschrift fuer Naturforschung, Teil B: Anorganische Chemie, Organische Chemie, Biochemie, Biophysik, Biologie (1969), 24(10), 1237-46
 CODEN: ZENBAX; ISSN: 0044-3174
 DOCUMENT TYPE: Journal
 LANGUAGE: German
 AB The 31P chemical shifts of 82 organophosphorus compds. with 3-6-coordinated P and in some cases the coupling consts., JPH and JPF, are reported and discussed.
 IT 25530-07-8
 RL: PRP (Properties) (nuclear magnetic resonance of)
 RN 25530-07-8 CAPLUS
 CN Sulfamoyl chloride, [dichloro[[dichloro[(trichlorophosphoranylidene)amino]phosphoranylidene]amino]phosphoranylidene]⁻ (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 40 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

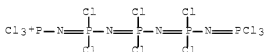
ACCESSION NUMBER: 1969:450677 CAPLUS Full-text
 DOCUMENT NUMBER: 71:50677
 ORIGINAL REFERENCE NO.: 71:9351a
 TITLE: Addition compounds of linear phosphonitrile chloride polymers
 INVENTOR(S): Murch, Robert M.; DeVore, Dorothy C.
 PATENT ASSIGNEE(S): W. R. Grace and Co.
 SOURCE: Ger., 14 pp.
 CODEN: GWXXAW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1802016		19690529	DE 1968-1802016	19681009
GB 1242405			GB	
PRIORITY APPLN. INFO.:			US	19671012

AB Phosphonitrilic compds. which are stable to heat and hydrolysis are prepared A typical title compound is prepared by heating a linear phosphonitrilic chloride Cl(PNC12)nPCl3+Cl- (IV) with a metal chloride, fluoride, bromide, oxychloride, oxyfluoride, or oxybromide for 0.25-20 hrs. at 175-250°. Thus, equimol. amts. of IV (n = 3-4, mol. weight .apprx.800) and NbCl5 were heated for .apprx.1 hr. under dry N at 200° to give a golden, viscous oil, which was stable at >540° and contained P 17.2, N 5.5, Cl 68.6, and Nb 9.3% corresponding to the formula Cl(PNC12)4 5PCl3.NbCl6. Dark-brown oils were obtained when IV was treated with MoCl5, TaCl5, PtCl4, WCl6, or RuCl4. Yellow oils stable at >540° were obtained by reaction of IV with NbOC13 or WO2Cl2.

IT 24887-07-8P 24887-08-9P 24887-09-0P
 24887-10-3P
 RL: PREP (Preparation)
 (preparation of)
 RN 24887-07-8 CAPLUS
 CN Phosphorus(1+), trichloro[P,P-dichloro-N-[P,P-dichloro-N-(P,P-dichlorophosphinimyl)phosphinimyl]phosphinimyl]phosphorimidic trichloridato]-, (T-4)-, (OC-6-11)-hexachlorotantalate(1-) (9CI) (CA INDEX NAME)

CM 1
 CRN 45261-08-3
 CMF Cl12 N4 P5



CM 2
 CRN 21640-07-3
 CMF Cl6 Ta
 CCI CCS



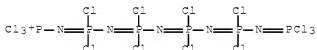
RN 24887-08-9 CAPLUS

CN Phosphorus(1+), [[P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(P,P-dichlorophosphinimyl)phosphinimyl]phosphinimyl]phosphinimyl]phosphorimidic trichloridato]-, (T-4)-, (OC-6-11)-hexachloroniobate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 45287-16-9

CMF Cl14 N5 P6



CM 2

CRN 21640-06-2

CMF Cl6 Nb

CCI CCS



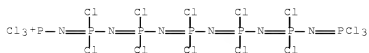
RN 24887-09-0 CAPLUS

CN Phosphorus(1+), [[P,P-dichloro-N-[P,P-dichloro-N-[P,P-dichloro-N-(P,P-dichloro-N-(P,P-dichlorophosphinimyl)phosphinimyl]phosphinimyl]phosphinimyl]phosphorimidic trichloridato]-, (T-4), (OC-6-11)-hexachloromolybdate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 45300-69-4

CMF Cl16 N6 P7

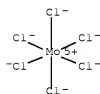


CM 2

CRN 20581-15-1

CMF Cl6 Mo

CCI CCS



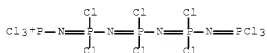
RN 24887-10-3 CAPLUS

CN Phosphorus(1+), [[P,P-dichloro-N-[P,P-dichloro-N-(P,P-dichlorophosphinimyl)phosphinimyl]phosphinimyl]phosphorimidic trichloridato]-, (T-4)-, (OC-6-11)-hexachloroniobate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 45261-08-3

CMF Cl12 N4 P5

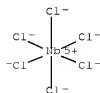


CM 2

CRN 21640-06-2

CMF Cl6 Nb

CCI CCS



L141 ANSWER 41 OF 41 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1968:464235 CAPLUS Full-text

DOCUMENT NUMBER: 69:64235

ORIGINAL REFERENCE NO.: 69:11995a,11998a

TITLE: Preparation of linear phosphonitrilic chlorides

AUTHOR(S): Moran, E. F.

CORPORATE SOURCE: Eastern Lab., E. I. du Pont de Nemours and Co.,
Gibbstown, NJ, USASOURCE: Journal of Inorganic and Nuclear Chemistry (1968),
30(6), 1405-13

CODEN: JINCAO; ISSN: 0022-1902

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The reaction between PCl_5 and phosphonitrilic chloride trimer and tetramer, under controlled conditions, yields the linear phosphonitrilic chlorides $[\text{Cl}(\text{PCl}_2:\text{N})_n\text{PCl}_3]\text{PCl}_6$, where $n = 3$ and 4 , resp. A mechanism is proposed involving a complex between the PCl_4^+ cation and the cyclic phosphonitrile through a ring N atom. Evidence, based on P N.M.R. indicates that the next step in the reaction between the linear chloride, $[\text{Cl}(\text{PCl}_2:\text{N})_3\text{PCl}_3]\text{PCl}_6$, and addnl. $(\text{PNC})_2$ leads to the $[\text{Cl}(\text{PCl}_2:\text{N})_6\text{PCl}_3]\text{PCl}_6$, probably by a similar mechanism. The derivs. $[\text{Cl}(\text{PCl}_2:\text{N})_3\text{PCl}_3][\text{MCl}(\text{v}+1)]$, where $\text{M} = \text{B}$ and Al , were prepared and found to be fluids. The tetrachloroaluminate is thermally stable to 700° and, although no change in physical appearance was observed, P N.M.R. indicated that a mixture of species of the type $[\text{Cl}(\text{PCl}_2:\text{N})_n\text{PCl}_3]\text{AlCl}_4$ was present. At elevated temps., the tetrachloroborate derivative, $[\text{Cl}(\text{PCl}_2:\text{N})_3\text{PCl}_3]\text{BCl}_4$, underwent a similar cationic rearrangement, although it was also accompanied by the elimination of PCl_4BCl_4 and formation of phosphonitrilic chloride rubbery polymer. 18 references.

IT 21283-49-8P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

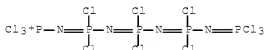
RN 21283-49-8 CAPLUS

CN Phosphorus(1+), trichloro[$[\text{P},\text{P}$ -dichloro-N- $[\text{P},\text{P}$ -dichloro-N-(P,P -dichlorophosphinimyl)phosphinimyl]phosphinimyl]phosphorimidic trichloridato]-, (T-4)-, hexachlorophosphate(1-) (1:1) (CA INDEX NAME)

CM 1

CRN 45261-08-3

CMF C112 N4 P5



CM 2

CRN 16920-87-9

CMF C16 P

CCI CCS



=> d que nos 196

L5 STR
 L7 109078 SEA FILE=REGISTRY SSS FUL L5
 L8 74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
 L11 144202 SEA FILE=CAPLUS SPE=ON ABB=ON BATTER?/OBI
 L32 87563 SEA FILE=CAPLUS SPE=ON ABB=ON FUEL CELL#/OBI
 L86 395023 SEA FILE=CAPLUS SPE=ON ABB=ON VISCOSITY/BI
 L87 162255 SEA FILE=CAPLUS SPE=ON ABB=ON MPA#/BI
 L88 105019 SEA FILE=CAPLUS SPE=ON ABB=ON CP/BI
 L96 4 SEA FILE=CAPLUS SPE=ON ABB=ON L8 AND (L86 OR L87 OR L88) AND
 (L11 OR L32)

=> s 196 not 1139,1140,1141

L142 3 L96 NOT (L139 OR L140 OR L141)

=> d ibib abs hitind hitstr 1142 1-3

L142 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:46152 CAPLUS Full-text

DOCUMENT NUMBER: 138:340884

TITLE: Evaluation of Fluorinated Alkyl Phosphates as Flame Retardants in Electrolytes for Li-Ion Batteries: I. Physical and Electrochemical Properties

AUTHOR(S): Xu, Kang; Ding, Michael S.; Zhang, Shengshui; Allen, Jan L.; Jow, T. Richard

CORPORATE SOURCE: Electrochemistry Branch, U.S. Army Research Laboratory, Adelphi, MD, 20783-1197, USA

SOURCE: Journal of the Electrochemical Society (2003), 150(2), A161-A169

CODEN: JESOAN; ISSN: 0013-4651

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The reduction of electrolyte flammability by the known phosphorus-based flame retardants is always realized at the expense of cell performance, i.e., either electrochem. instability causing severe capacity fading or high viscosity of these cosolvents affecting both capacity use and power. To alleviate this trade-off between cell safety and performance, the authors synthesized fluorinated alkyl phosphates and studied their applicability as flame retarding cosolvents in electrolytes for Li-ion batteries. Summarized in this part of the work are the phys. properties of these fluorinated phosphates and their effect on the flammability and ion conductivity as well as electrochem. stability of the electrolyte solns. containing them. The addition of these phosphates to electrolyte solns. reduces the overall flammability at the expense of ion conduction, while electrochem. stability on carbonaceous anodes is improved as the result of the introduction of fluorine. By adjusting fluorine content in the phosphates, it is possible to find a cosolvent that makes the concept of nonflammable lithium ion electrolyte practical.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 45, 59, 76

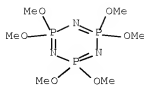
ST fluorinated alkyl phosphate flame retardant electrolyte Li ion battery; carbonate lithium salt electrolyte decompn voltage cyclic voltammetry flammability

IT Open circuit potential

(decay due to electrolyte decomposition; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame

- retardants in electrolytes for Li-ion batteries)
- IT Decomposition
(electrochem., of electrolyte compds.; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT Battery electrolytes
Cyclic voltammetry
Fireproofing agents
Flammability
Ionic conductivity
(evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT Phosphates, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(fluorinated alkyl- derivs.; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT Secondary batteries
(lithium; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 287931-15-1P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(BMP, solns. with LiPF₆/carbonate blend electrolyte; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 94080-67-8P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(TDP, solns. with LiPF₆/carbonate blend electrolyte; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 358-63-4P, Tris(2,2,2-trifluoroethyl) phosphate
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(TFP, solns. with LiPF₆/carbonate blend electrolyte; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 21324-40-3, Lithium hexafluorophosphate (LiPF₆)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(complexes with ethylene carbonate/ethylmethyl carbonate mixture, electrolyte base; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 1313-99-1, Nickel oxide, uses
RL: DEV (Device component use); USES (Uses)
(composite cathode, coated on aluminum; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(composite, coated on copper, anode; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(counter and reference electrode; evaluation of phys. and electrochem.

- properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 420-87-1, Sodium 2,2,2-trifluoroethoxide 125675-81-2 515145-16-1
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 190333-65-4P, Hypochlorous acid trianhydride with phosphoric acid
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 7440-50-8, Copper, uses
 RL: DEV (Device component use); USES (Uses)
 (graphite-coated anode; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 623-53-0, Ethylmethyl carbonate
 RL: PRP (Properties)
 (mixture with ethylene carbonate, complexes with LiPF₆, electrolyte base; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 96-49-1, Ethylene carbonate
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (mixture with ethylmethyl carbonate, complexes with LiPF₆, electrolyte base; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 7429-90-5, Aluminum, uses
 RL: DEV (Device component use); USES (Uses)
 (nickel oxide-coated cathode; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 78-40-0, Triethyl phosphate 512-56-1, Trimethyl phosphate
 RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
 (solns. with LiPF₆/carbonate blend electrolyte; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 957-13-1P
 RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
 (solns. with LiPF₆/carbonate blend electrolyte; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- IT 957-13-1P
 RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
 (solns. with LiPF₆/carbonate blend electrolyte; evaluation of phys. and electrochem. properties of fluorinated alkyl phosphates as flame retardants in electrolytes for Li-ion batteries)
- RN 957-13-1 CAPLUS
- CN 2λ5, 4λ5, 6λ5-1, 3, 5, 2, 4, 6-Triazatriphosphorine
 1, 3, 5, 2, 4, 6-Triazatriphosphorine, 2, 2, 4, 4, 6, 6-hexamethoxy- (CA INDEX NAME)



REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L142 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 1994:303349 CAPLUS Full-text
 DOCUMENT NUMBER: 120:303349
 ORIGINAL REFERENCE NO.: 120:53329a,53332a
 TITLE: Nonaqueous electrolyte batteries using improved electrolytes
 INVENTOR(S): Kajiwara, Naruyuki; Ogino, Takao; Myazaki, Tadaaki; Kawagoe, Takahiro
 PATENT ASSIGNEE(S): Bridgestone Corp, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06013108	A	19940121	JP 1993-92204	19930326
JP 3055358	B2	20000626		
JP 11144757	A	19990528	JP 1998-219660	19980717
JP 3055536	B2	20000626		

PRIORITY APPLN. INFO.: JP 1992-115284 A1 19920409
 JP 1993-92204 A3 19930326

AB In the batteries having cathodes, Li-intercalatable anodes, and Li+-containing nonaq. electrolytes, the electrolytes comprise solns. of phosphazene derivs. having viscosity at 25° of ≤300 cP and dissolving Li salts. The batteries are free from bursting and firing in short circuit, and have high voltage, discharge capacity, etc.

IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST battery electrolyte phosphazene deriv safety

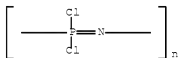
IT Safety
 (in batteries, electrolytes containing phosphazene derivs. and lithium salts for)

IT Battery electrolytes
 (lithium salts and phosphazene derivs. in, for safety)

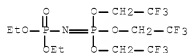
IT Phosphonitrile compounds
 RL: USES (Uses)
 (phosphazenes, electrolytes containing lithium salts and, with limited viscosity, for batteries, for safety)

IT 26985-02-9D, Poly[nitrilo(dichlorophosphoranylidene)], reaction products with fluorinated and nonfluorinated propanol 26985-02-9D, Poly[nitrilo(dichlorophosphoranylidene)], reaction products with propanol

- RL: USES (Uses)
(cyclic, oligomeric, electrolytes containing lithium salts and, with limited viscosity, for batteries, for safety)
- IT 155270-25-0
RL: USES (Uses)
(electrolytes containing lithium salts and, with limited viscosity, for batteries, for safety)
- IT 7439-93-2D, Lithium, salts 21324-40-3
RL: USES (Uses)
(electrolytes containing phosphazene derivs. and, for batteries, for safety)
- IT 26085-02-9D, Poly[nitrilo(dichlorophosphoranylidene)], reaction products with fluorinated and nonfluorinated propanol
RL: USES (Uses)
(cyclic, oligomeric, electrolytes containing lithium salts and, with limited viscosity, for batteries, for safety)
- RN 26085-02-9 CAPLUS
- CN Poly[nitrilo(dichlorophosphoranylidene)] (CA INDEX NAME)

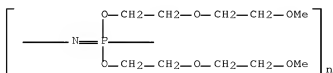


- IT 155270-25-0
RL: USES (Uses)
(electrolytes containing lithium salts and, with limited viscosity, for batteries, for safety)
- RN 155270-25-0 CAPLUS
- CN Phosphorimidic acid, N-(diethoxyphosphinyl)-, tris(2,2,2-trifluoroethyl) ester (CA INDEX NAME)



L142 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 1989:617145 CAPLUS Full-text
 DOCUMENT NUMBER: 111:217145
 ORIGINAL REFERENCE NO.: 111:36011a
 TITLE: Effect of γ -radiation on the structure and ionic conductivity of 2-(2-methoxy-ethoxy-ethoxy) polyphosphazene + lithium trifluoromethane sulfonate
 AUTHOR(S): Nazri, G. A.; Meibuhr, S. G.
 CORPORATE SOURCE: Phys. Chem. Dep., Gen. Motors Res. Lab., Warren, MI, 48090, USA
 SOURCE: Journal of the Electrochemical Society (1989), 136(9), 2450-4
 CODEN: JESQAN; ISSN: 0013-4651
 DOCUMENT TYPE: Journal
 LANGUAGE: English

- AB The conducting polymer 2-(2-methoxy-ethoxy-ethoxy)polyphosphazene containing LiCF₃SO₃ has an ionic conductivity of $7 \times 10^{-5} \Omega^{-1}\text{cm}$ at 22°; γ -radiation caused crosslinking which did not affect the conductivity but enhanced the viscosity of the polymer which had a consistency suitable for use as battery electrolyte. Fourier-transform IR spectra indicate that the chain orientation in the polymer changed leading to a tridimensional structure and there were side chain interactions in the irradiated polymer.
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
- ST ion conducting polymer methoxyethoxypolyphosphazene electrolyte; lithium trifluoromethanesulfonate polyphosphazene electrolyte; battery electrolyte methoxyethoxypolyphosphazene lithium triflate; crosslinking methoxyethoxypolyphosphazene gamma ray
- IT Gamma ray, chemical and physical effects
(crosslinking by, of methoxy-ethoxy-ethoxy-polyphosphazene/lithium trifluoromethanesulfonate, for battery electrolytes)
- IT Batteries, secondary
(methoxy-ethoxy-ethoxypolyphosphazene/lithium trifluoromethanesulfonate conducting polymer electrolytes for, morphol. and ion conductivity of)
- IT Chains, chemical
Infrared spectra
(orientation of, in methoxy-ethoxy-ethoxy-polyphosphazene/lithium trifluoromethanesulfonate, γ -irradiation effect on, for battery electrolytes)
- IT Electric conductivity and conduction
(ionic, of methoxy-ethoxy-ethoxy-polyphosphazene/lithium trifluoromethanesulfonate, γ -irradiation effect on, for battery electrolytes)
- IT 7439-93-2D, Lithium, 2-(2-methoxy-ethoxy-ethoxy)polyphosphazene complexes 98973-15-0D, lithium complexes
RL: USES (Uses)
(electrolytes of γ -irradiation crosslinked, containing trifluoromethanesulfonate, ion conductivity and morphol. of, for batteries)
- IT 33454-82-9
RL: USES (Uses)
(electrolytes, γ -irradiation crosslinked methoxyethoxypolyphosphazene containing, ion conductivity and morphol. of, for batteries)
- IT 98973-15-0D, lithium complexes
RL: USES (Uses)
(electrolytes of γ -irradiation crosslinked, containing trifluoromethanesulfonate, ion conductivity and morphol. of, for batteries)
- RN 98973-15-0 CAPLUS
- CN Poly[nitrilo[bis[2-(2-methoxyethoxy)ethoxy]phosphoranylidene]] (CA INDEX NAME)



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 DICTIONARY FILE UPDATES: 27 MAR 2009 HIGHEST RN 1128305-29-2

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L5 STR
 L7 109078 SEA FILE=REGISTRY SSS FUL L5
 L104 0 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND PO/ELS

=> fil capl; d que nos l115; d que nos l117; d que nos l119; d que nos l120; d que
 nos l123; d que nos l116; d que nos l118; d que nos l126
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 FILE LAST UPDATED: 27 Mar 2009 (20090327/ED)

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        OR 110-71-4/BI OR 1313-13-9/BI OR 134435-36-2/BI OR 25322-68-3/
        BI OR 33027-66-6/BI OR 485399-26-6/BI OR 52627-24-4/BI OR
        55593-38-9/BI OR 593094-52-1/BI OR 639065-14-8/BI OR 639065-15-
        9/BI OR 639067-35-9/BI OR 639067-36-0/BI OR 639067-37-1/BI OR
        7439-93-2/BI OR 96-49-1/BI)
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L7      109078 SEA FILE=REGISTRY SSS FUL L5
L8      74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
L9      780 SEA FILE=CAPLUS SPE=ON ABB=ON L8 (L) TEM/RL
L10     323 SEA FILE=CAPLUS SPE=ON ABB=ON L8 (L) DEV/RL
L11     144202 SEA FILE=CAPLUS SPE=ON ABB=ON BATTER?/OBI
L14     16353 SEA FILE=CAPLUS SPE=ON ABB=ON APROTIC?/BI
L17     186137 SEA FILE=CAPLUS SPE=ON ABB=ON SUPPORT?/OBI
L22     8 SEA FILE=REGISTRY SPE=ON ABB=ON L2 NOT L7
L23     250787 SEA FILE=CAPLUS SPE=ON ABB=ON L22
L25     77091 SEA FILE=CAPLUS SPE=ON ABB=ON ANODE#/OBI
L26     108158 SEA FILE=CAPLUS SPE=ON ABB=ON CATHODE#/OBI
L27     346576 SEA FILE=CAPLUS SPE=ON ABB=ON ELECTRODE#/OBI
L28     6060 SEA FILE=CAPLUS SPE=ON ABB=ON L27 (L) POS?/OBI
L29     6316 SEA FILE=CAPLUS SPE=ON ABB=ON L27 (L) NEG?/OBI
L32     87563 SEA FILE=CAPLUS SPE=ON ABB=ON FUEL CELL#/OBI
L38     30050 SEA FILE=CAPLUS SPE=ON ABB=ON NONAQ?/OBI OR NON/OBI (W) AQUEOUS
        /OBI
L63     369118 SEA FILE=CAPLUS SPE=ON ABB=ON 72/SC, SX
L86     395023 SEA FILE=CAPLUS SPE=ON ABB=ON VISCOSITY/BI
L87     162255 SEA FILE=CAPLUS SPE=ON ABB=ON MPA#/BI
L88     105019 SEA FILE=CAPLUS SPE=ON ABB=ON CP/BI
L97     226 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND GE/ELS
L98     375 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND SN/ELS
L99     146 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND AS/ELS
L100    243 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND SB/ELS
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L102    622 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND SE/ELS
L103    186 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND TE/ELS
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L108    106 SEA FILE=CAPLUS SPE=ON ABB=ON L100
L109    23 SEA FILE=CAPLUS SPE=ON ABB=ON L101
L110    385 SEA FILE=CAPLUS SPE=ON ABB=ON L102
L111    97 SEA FILE=CAPLUS SPE=ON ABB=ON L103
L113    39 SEA FILE=CAPLUS SPE=ON ABB=ON (L105 OR L106 OR L107 OR L108
        OR L109 OR L110 OR L111) AND (L32 OR L11 OR L38 OR L25 OR L26
        OR L28 OR L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63)
L114    19 SEA FILE=CAPLUS SPE=ON ABB=ON (L86 OR L87 OR L88) AND (L105
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L115    2 SEA FILE=CAPLUS SPE=ON ABB=ON L113 AND L114

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        OR 110-71-4/BI OR 1313-13-9/BI OR 134435-36-2/BI OR 25322-68-3/

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 9/BI OR 639067-35-9/BI OR 639067-36-0/BI OR 639067-37-1/BI OR
 7439-93-2/BI OR 96-49-1/BI)
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 L8 74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
 L9 780 SEA FILE=CAPLUS SPE=ON ABB=ON L8 (L) TEM/RL
 L10 323 SEA FILE=CAPLUS SPE=ON ABB=ON L8 (L) DEV/RL
 L11 144202 SEA FILE=CAPLUS SPE=ON ABB=ON BATTER?/OBI
 L14 16353 SEA FILE=CAPLUS SPE=ON ABB=ON APROTIC?/BI
 L17 186137 SEA FILE=CAPLUS SPE=ON ABB=ON SUPPORT?/OBI
 L22 8 SEA FILE=REGISTRY SPE=ON ABB=ON L2 NOT L7
 L23 250787 SEA FILE=CAPLUS SPE=ON ABB=ON L22
 L25 77091 SEA FILE=CAPLUS SPE=ON ABB=ON ANODE#/OBI
 L26 108158 SEA FILE=CAPLUS SPE=ON ABB=ON CATHODE#/OBI
 L27 346576 SEA FILE=CAPLUS SPE=ON ABB=ON ELECTRODE#/OBI
 L28 6060 SEA FILE=CAPLUS SPE=ON ABB=ON L27 (L) POS?/OBI
 L29 6316 SEA FILE=CAPLUS SPE=ON ABB=ON L27 (L) NEG?/OBI
 L32 87563 SEA FILE=CAPLUS SPE=ON ABB=ON FUEL CELL#/OBI
 L38 30050 SEA FILE=CAPLUS SPE=ON ABB=ON NONAQ?/OBI OR NON/OBI (W) AQUEOUS
 /OBI
 L63 369118 SEA FILE=CAPLUS SPE=ON ABB=ON 72/SC, SX
 L98 375 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND SN/ELS
 L106 181 SEA FILE=CAPLUS SPE=ON ABB=ON L98
 L117 5 SEA FILE=CAPLUS SPE=ON ABB=ON L106 AND (L32 OR L11 OR L38 OR
 L25 OR L26 OR L28 OR L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR
 L63)

 L2 18 SEA FILE=REGISTRY SPE=ON ABB=ON (105-58-8/BI OR 108-32-7/BI
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 L108 106 SEA FILE=CAPLUS SPE=ON ABB=ON L100
 L119 6 SEA FILE=CAPLUS SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR
 L26 OR L28 OR L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63)

AND L108

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L7      109078 SEA FILE=REGISTRY SSS FUL L5
L8      74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
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L14     16353 SEA FILE=CAPLUS SPE=ON ABB=ON APROTIC?/BI
L17     186137 SEA FILE=CAPLUS SPE=ON ABB=ON SUPPORT?/OBI
L22     8 SEA FILE=REGISTRY SPE=ON ABB=ON L2 NOT L7
L23     250787 SEA FILE=CAPLUS SPE=ON ABB=ON L22
L25     77091 SEA FILE=CAPLUS SPE=ON ABB=ON ANODE#/OBI
L26     108158 SEA FILE=CAPLUS SPE=ON ABB=ON CATHODE#/OBI
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L28     6060 SEA FILE=CAPLUS SPE=ON ABB=ON L27 (L) POS?/OBI
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L32     87563 SEA FILE=CAPLUS SPE=ON ABB=ON FUEL CELL#/OBI
L38     30050 SEA FILE=CAPLUS SPE=ON ABB=ON NONAQ?/OBI OR NON/OBI (W) AQUEOUS
/OBI
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L101    43 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND BI/ELS
L109    23 SEA FILE=CAPLUS SPE=ON ABB=ON L101
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55593-38-9/BI OR 593094-52-1/BI OR 639065-14-8/BI OR 639065-15-
9/BI OR 639067-35-9/BI OR 639067-36-0/BI OR 639067-37-1/BI OR
7439-93-2/BI OR 96-49-1/BI)
L5      STR
L7      109078 SEA FILE=REGISTRY SSS FUL L5
L8      74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
L9      780 SEA FILE=CAPLUS SPE=ON ABB=ON L8 (L) TEM/RL
L10     323 SEA FILE=CAPLUS SPE=ON ABB=ON L8 (L) DEV/RL
L11     144202 SEA FILE=CAPLUS SPE=ON ABB=ON BATTER?/OBI
L14     16353 SEA FILE=CAPLUS SPE=ON ABB=ON APROTIC?/BI
L17     186137 SEA FILE=CAPLUS SPE=ON ABB=ON SUPPORT?/OBI
L22     8 SEA FILE=REGISTRY SPE=ON ABB=ON L2 NOT L7
L23     250787 SEA FILE=CAPLUS SPE=ON ABB=ON L22
L25     77091 SEA FILE=CAPLUS SPE=ON ABB=ON ANODE#/OBI
L26     108158 SEA FILE=CAPLUS SPE=ON ABB=ON CATHODE#/OBI
L27     346576 SEA FILE=CAPLUS SPE=ON ABB=ON ELECTRODE#/OBI
L28     6060 SEA FILE=CAPLUS SPE=ON ABB=ON L27 (L) POS?/OBI
L29     6316 SEA FILE=CAPLUS SPE=ON ABB=ON L27 (L) NEG?/OBI
L32     87563 SEA FILE=CAPLUS SPE=ON ABB=ON FUEL CELL#/OBI
L38     30050 SEA FILE=CAPLUS SPE=ON ABB=ON NONAQ?/OBI OR NON/OBI (W) AQUEOUS

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/OBI
L63      369118 SEA FILE=CAPLUS SPE=ON ABB=ON 72/SC,SX
L102     622 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND SE/ELS
L103     186 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND TE/ELS
L110     385 SEA FILE=CAPLUS SPE=ON ABB=ON L102
L111     97 SEA FILE=CAPLUS SPE=ON ABB=ON L103
L121     22 SEA FILE=CAPLUS SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR
L26 OR L28 OR L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63)
AND L110
L122     10 SEA FILE=CAPLUS SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR
L26 OR L28 OR L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63)
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L123     4 SEA FILE=CAPLUS SPE=ON ABB=ON L121 AND L122

L2       18 SEA FILE=REGISTRY SPE=ON ABB=ON (105-58-8/BI OR 108-32-7/BI
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7439-93-2/BI OR 96-49-1/BI)
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L9       780 SEA FILE=CAPLUS SPE=ON ABB=ON L8(L)TEM/RL
L10      323 SEA FILE=CAPLUS SPE=ON ABB=ON L8(L)DEV/RL
L11      144202 SEA FILE=CAPLUS SPE=ON ABB=ON BATTER7/OBI
L14      16353 SEA FILE=CAPLUS SPE=ON ABB=ON APROTIC7/OBI
L17      186137 SEA FILE=CAPLUS SPE=ON ABB=ON SUPPORT7/OBI
L22      8 SEA FILE=REGISTRY SPE=ON ABB=ON L2 NOT L7
L23      250787 SEA FILE=CAPLUS SPE=ON ABB=ON L22
L25      77091 SEA FILE=CAPLUS SPE=ON ABB=ON ANODE#/OBI
L26      108158 SEA FILE=CAPLUS SPE=ON ABB=ON CATHODE#/OBI
L27      346576 SEA FILE=CAPLUS SPE=ON ABB=ON ELECTRODE#/OBI
L28      6060 SEA FILE=CAPLUS SPE=ON ABB=ON L27(L)POS7/OBI
L29      6316 SEA FILE=CAPLUS SPE=ON ABB=ON L27(L)NEG7/OBI
L32      87563 SEA FILE=CAPLUS SPE=ON ABB=ON FUEL CELL#/OBI
L38      30050 SEA FILE=CAPLUS SPE=ON ABB=ON NONAQ7/OBI OR NON/OBI(W)AQUEOUS
/OBI
L63      369118 SEA FILE=CAPLUS SPE=ON ABB=ON 72/SC,SX
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7439-93-2/BI OR 96-49-1/BI)
STR
L5       109078 SEA FILE=REGISTRY SSS FUL L5
L7       74083 SEA FILE=CAPLUS SPE=ON ABB=ON L7
L9       780 SEA FILE=CAPLUS SPE=ON ABB=ON L8(L)TEM/RL
L10      323 SEA FILE=CAPLUS SPE=ON ABB=ON L8(L)DEV/RL

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 L26 108158 SEA FILE=CAPLUS SPE=ON ABB=ON CATHODE#/OBI
 L27 346576 SEA FILE=CAPLUS SPE=ON ABB=ON ELECTRODE#/OBI
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 L29 6316 SEA FILE=CAPLUS SPE=ON ABB=ON L27(L)NEG?/OBI
 L32 87563 SEA FILE=CAPLUS SPE=ON ABB=ON FUEL CELL#/OBI
 L38 30050 SEA FILE=CAPLUS SPE=ON ABB=ON NONAQ?/OBI OR NON/OBI(W)AQUEOUS
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 L63 369118 SEA FILE=CAPLUS SPE=ON ABB=ON 72/SC, SX
 L99 146 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND AS/ELS
 L107 66 SEA FILE=CAPLUS SPE=ON ABB=ON L99
 L118 0 SEA FILE=CAPLUS SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR
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 AND L107

L5 STR
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 L97 226 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND GE/ELS
 L98 375 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND SN/ELS
 L99 146 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND AS/ELS
 L100 243 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND SB/ELS
 L101 43 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND BI/ELS
 L102 622 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND SE/ELS
 L103 186 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND TE/ELS
 L105 67 SEA FILE=CAPLUS SPE=ON ABB=ON L97
 L106 181 SEA FILE=CAPLUS SPE=ON ABB=ON L98
 L107 66 SEA FILE=CAPLUS SPE=ON ABB=ON L99
 L108 106 SEA FILE=CAPLUS SPE=ON ABB=ON L100
 L109 23 SEA FILE=CAPLUS SPE=ON ABB=ON L101
 L110 385 SEA FILE=CAPLUS SPE=ON ABB=ON L102
 L111 97 SEA FILE=CAPLUS SPE=ON ABB=ON L103
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 L126 0 SEA FILE=CAPLUS SPE=ON ABB=ON (L105 OR L106 OR L107 OR L108
 OR L109 OR L110 OR L111) AND L124

=> s l115,l117,l119,l120,l123 not l139,l140,l141,l142
 L143 16 (L115 OR L117 OR L119 OR L120 OR L123) NOT (L139 OR L140 OR L141
 OR L142) L139,L140,L141,L142 WERE PREVIOUSLY PRINTED

=> d ibib abs hitind hitstr 1-16; fil hom

L143 ANSWER 1 OF 16 CAPLUS COPYRIGHT 2009 ACS ON STN
 ACCESSION NUMBER: 2008:610922 CAPLUS Full-text
 TITLE: Electron-sponge behavior, reactivity and electronic
 structures of cobalt-centered cubic Co9Te6(CO)8
 clusters
 AUTHOR(S): Bencharif, Mustapha; Cador, Olivier; Cattey, Helene;
 Ebner, Alexander; Halet, Jean-Francois; Kahlal, Samia;
 Meier, Walter; Mugnier, Yves; Saillard, Jean-Yves;
 Schwarz, Patrick; Trodi, Fatima Zohra; Wachter,
 Joachim; Zabel, Manfred
 CORPORATE SOURCE: Departement de Chimie, Faculte des Sciences Exactes,

Universite Mentouri-Constantine, Constantine, 25000,
Algeria

SOURCE: European Journal of Inorganic Chemistry (2008), (12),
1959-1968
CODEN: EJICFO; ISSN: 1434-1948

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Extended investigations of the reaction sequence [Cp
'2Nb(Te2)H]/CH3Li/[Co2(CO)8] (Cp' = tBuC5H4) led to the identification of
Lin[3] {3 = [Co9Te6(CO)8]; n = 1, 2} salts through their transformation with
[PPN]Cl into [PPN]n[3] (PPN = Ph3PNPPh3). These compds. form in the solid
state columnar ([PPN][3]) or undulated 2D ([PPN]2[3]) supramol. networks.
Electrochem. studies of [Cp*2Nb(CO)2][3] (Cp* = C5Me5) or [Na(THF)6][3]
revealed the presence of the redox couples [3]-/[3]2-/[3]3-/[3]4-/[3]5-
regardless of the nature of the cation, whereas in the anodic part oxidative
degradation of the cluster takes place. This behavior is in agreement with
the observation that [3]- containing salts form with PPh3AuCl or dppe
decomposition products like [(PPh3)2Au][CoCl3PPh3] or [Co(CO)2dppe]2(μ-Te). A
neutral cluster comprising the Co@Co8(μ4-Te)6 core formed in the reaction
of [Cp*2Nb(CO)2][Co11Te7(CO)10] with PPh3AuCl, which gave [Co9Te6(CO)4(PPh3)4]
(4) after oxidative cluster degradation and CO substitution. 4 was
characterized by X-ray crystallog. DFT calcns. carried out on all members of
the [3]n (n = +1 to -5) family and on related species indicate that there is
no significant Jahn-Teller distortion (and therefore no connectivity change)
for any of the considered electron counts. Magnetic investigations on
[PPN][3] show that the ground state of [3]- is a spin triplet with spins
interacting antiferromagnetically in a 1D space.

CC 67-3 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 65, 78, 72, 75, 77, 29

IT INDEXING IN PROGRESS

IT 1104599-14-5E 1104599-16-7P 1104599-18-9P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT
(Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC
(Process); RACT (Reactant or reagent)
(electron-sponge behavior, reactivity and electronic structures of
cobalt-centered cubic Co9Te6(CO)8 clusters)

IT 1104599-14-5P 1104599-16-7P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT
(Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC
(Process); RACT (Reactant or reagent)
(electron-sponge behavior, reactivity and electronic structures of
cobalt-centered cubic Co9Te6(CO)8 clusters)

RN 1104599-14-5 CAPLUS

CN INDEX NAME NOT YET ASSIGNED

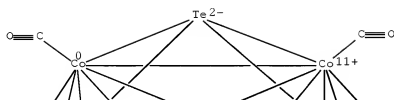
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CRN 760977-45-5

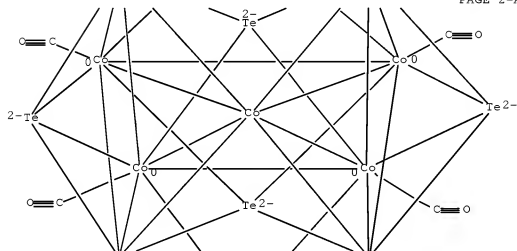
CMF C8 Co9 O8 Te6

CCI CCS

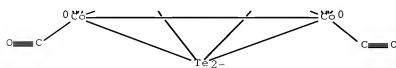
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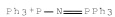
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PAGE 3-A



CRN 48236-06-2
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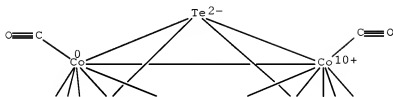


RN 1104599-16-7 CAPLUS
 CN INDEX NAME NOT YET ASSIGNED

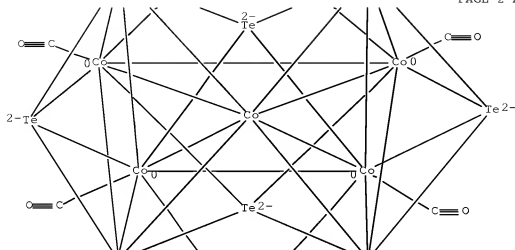
CM 1

CRN 263020-43-5
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 CCI CCS

PAGE 1-A



PAGE 2-A



PAGE 3-A



CM 2

CRN 48236-06-2

CMF C36 H30 N P2

 $\text{Ph}_3\text{P}=\text{N}=\text{PPh}_3$

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L143 ANSWER 2 OF 16 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:777775 CAPLUS Full-text

DOCUMENT NUMBER: 145:357142

TITLE: Synthesis and characterization of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening polymerization catalysis of ϵ -caprolactone

AUTHOR(S): Qi, Chun-Yan; Wang, Zhong-Xia

CORPORATE SOURCE: Department of Chemistry, University of Science and Technology of China, Hefei, Anhui, 230026, Peop. Rep. China

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry

(2006), 44(15), 4621-4631
 CODEN: JPACEC; ISSN: 0887-624X
 John Wiley & Sons, Inc.

PUBLISHER:

DOCUMENT TYPE:

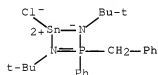
LANGUAGE:

Journal

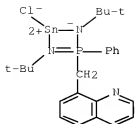
English

- AB A series of Al(III) and Sn(II) diiminophosphinate complexes were synthesized. Reaction of Ph(ArCH₂)P(=NBut)NHBu (Ar = Ph, 3; Ar = 8-quinolyl, 4) with AlR₃ (R = Me, Et) gave aluminum complexes [R₂Al{(NBut)2P(Ph)(CH₂Ar)}] (R = Me, Ar = Ph, 5; R = Me, Ar = 8-quinolyl, 6; R = Et, Ar = Ph, 7; R = Et, Ar = quinolyl, 8). Lithiated 3 and 4 were treated with SnCl₂ to afford tin(II) complexes [ClSn{(NBut)2P(Ph)(CH₂Ar)}] (Ar = Ph, 9; Ar = 8-quinolyl, 10). Complex 9 was converted to [(Me₃Si)2NSn{(NBut)2P(Ph)(CH₂Ph)}] (11) by treatment with LiN(SiMe₃)₂. Complex 11 was also obtained by reaction of 3 with [Sn(N(SiMe₃)₂)₂]. Complex 9 reacted with [LiOC₆H₄But-4] to yield [4-ButC₆H₄OSn{(NBut)2P(Ph)(CH₂Ph)}] (12). Compds. 3-12 were characterized by NMR spectroscopy and elemental anal. The structures of complexes 6, 10, and 11 were further characterized by single crystal x-ray diffraction techniques. The catalytic activity of complexes 5-8, 11, and 12 toward the ring-opening polymerization of ϵ -caprolactone (CL) was studied. In the presence of BzOH, the complexes catalyzed the ring-opening polymerization of ϵ -CL in the activity order of 5 > 7 \approx 8 > 6 » 11 > 12, giving polymers with narrow mol. weight distributions. The kinetic studies showed a first-order dependency on the monomer concentration in each case.
- CC 35-3 (Chemistry of Synthetic High Polymers)
- IT Crystal structure
 (of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands for use as catalysts for ring-opening polymerization of ϵ -caprolactone)
- IT Polymerization catalysts
 (ring-opening; synthesis and characterization of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening polymerization catalysis of ϵ -caprolactone)
- IT Polyesters, preparation
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (synthesis and characterization of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening polymerization catalysis of ϵ -caprolactone)
- IT 910579-79-2P 910579-80-5P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (in synthesis and characterization of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening polymerization catalysis of ϵ -caprolactone)
- IT 75-24-1, Trimethylaluminum 97-93-8, Triethylaluminum, reactions 98-54-4, 4-tert-Butylphenol 100-39-0, Benzyl bromide 7496-46-0, 8-Bromomethylquinoline 7772-99-8, Tin chloride (SnCl₂), reactions 15916-96-8 55147-78-9, Tin bis[bis(trimethylsilyl)amide]
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (in synthesis and characterization of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening polymerization catalysis of ϵ -caprolactone)
- IT 910566-62-0P 910566-63-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (in synthesis of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening

- polymerization catalysis of ϵ -caprolactone)
- IT 910566-64-2P 910566-65-3P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (ligand; synthesis and characterization of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening polymerization catalysis of ϵ -caprolactone)
- IT 910579-75-8P 910579-76-9P 910579-77-0P 910579-78-1P
 910579-81-6P 910579-82-7P
 RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (polymerization catalyst; synthesis and characterization of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening polymerization catalysis of ϵ -caprolactone)
- IT 100-51-6, Benzyl alcohol, uses
 RL: CAT (Catalyst use); USES (Uses)
 (synthesis and characterization of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening polymerization catalysis of ϵ -caprolactone)
- IT 24980-41-4P, Poly(ϵ -caprolactone) 25248-42-4P, Poly[oxy(1-oxo-1,6-hexanediyl)]
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (synthesis and characterization of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening polymerization catalysis of ϵ -caprolactone)
- IT 910579-79-2P 910579-80-5P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (in synthesis and characterization of aluminum(III) and tin(II) complexes supported by diiminophosphinate ligands and their application in ring-opening polymerization catalysis of ϵ -caprolactone)
- RN 910579-79-2 CAPLUS
- CN Tin, [N,N'-bis(1,1-dimethylethyl)-P-phenyl-P-(phenylmethyl)phosphinimidic amidato- κ N, κ N']chloro- (9CI) (CA INDEX NAME)



- RN 910579-80-5 CAPLUS
- CN Tin, [N,N'-bis(1,1-dimethylethyl)-P-phenyl-P-(8-quinolinylmethyl)phosphinimidic amidato- κ N, κ N']chloro- (9CI) (CA INDEX NAME)

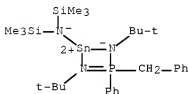


IT 910579-81-6P 910579-82-7P
 RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
 PREP (Preparation); USES (Uses)
 (polymerization catalyst; synthesis and characterization of aluminum(III))

and
 tin(II) complexes supported by diiminophosphinate ligands and
 their application in ring-opening polymerization catalysis of
ε-caprolactone)

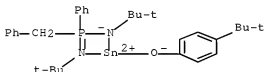
RN 910579-81-6 CAPLUS

CN Tin, [N,N'-bis(1,1-dimethylethyl)-P-phenyl-P-(phenylmethyl)phosphinimidic
 amidato-κN,κN'] [1,1,1-trimethyl-N-
 (trimethylsilyl)silanaminato]- (9CI) (CA INDEX NAME)



RN 910579-82-7 CAPLUS

CN Tin, [N,N'-bis(1,1-dimethylethyl)-P-phenyl-P-(phenylmethyl)phosphinimidic
 amidato-κN,κN'] [4-(1,1-dimethylethyl)phenolato]- (9CI) (CA
 INDEX NAME)



REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L143 ANSWER 3 OF 16 CAPLUS COPYRIGHT 2009 ACS on STN

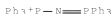
ACCESSION NUMBER: 2005:1056292 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 145:397594

TITLE: Molecular conductors based on peri-ditellurium-bridged
 donors, 2,3-DMTTeA and TMTTeN

AUTHOR(S): Fujiwara, Emiko; Fujiwara, Hideki; Narymbetov, Bakhyt
 Zh.; Kobayashi, Hayao; Nakata, Masahiro; Torii,

Hajime; Kobayashi, Akiko; Takimiya, Kazuo; Otsubo, Tetsuo; Ogura, Fumio
 CORPORATE SOURCE: Research Centre for Spectrochemistry, School of Science, The University of Tokyo, Hongo, Bunkyo-ku, Tokyo, 113-0033, Japan
 SOURCE: European Journal of Inorganic Chemistry (2005), (17), 3435-3449
 CODEN: EJICFO; ISSN: 1434-1948
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 145:397594
 AB Mol. conductors based on peri-ditellurium-bridged polyacene donor mols. 3,4-dimethylanthra[1,9-cd:4,10-c'd']bis[1,2]ditellurole (2,3-DMTTeA) and 2,3,6,7-tetramethylnaphtho[1,8-cd:4,5-c'd']bis[1,2]ditellurole (TMTTeN) were prepared. The crystal structure analyses of neutral 2,3-DMTTeA mol. and its cation radical salts revealed that these crystals involve an orientational disorder of the asym. mol., 2,3-DMTTeA, and that the intermol. network through tellurium atoms is very strong and dominant in terms of the construction of the crystal frameworks. In the crystal of (TMTTeN)2M(CN)2 (M = Ag and Au), the crystal structure analyses and the extended Huckel tight-binding band calcs. indicated that these salts are quasi three-dimensional conductors. These salts are highly conductive (720-760 S cm⁻¹) and maintain metallic states down to about 50 K. Furthermore, the Ag(CN)2⁻ salt exhibited a Pauli paramagnetic behavior down to 2 K [$\chi(\text{para}) \approx 2.0-2.5 \times 10^{-4}$ emu mol⁻¹]. In the crystal of (TMTTeN)(SCN)0.88, the donor mols. are stacked to form one-dimensional columns and construct a three-dimensional network between the columns through the intermol. Te...Te contacts. The SCN⁻ salt is also highly conductive (590 S cm⁻¹) and maintains a metallic behavior down to 4.2 K. Almost temperature-independent paramagnetic susceptibility of (TMTTeN)(SCN)0.88 indicates Pauli paramagnetism of this salt [$\chi(\text{para}) \approx 1.6-1.9 \times 10^{-4}$ emu mol⁻¹]. A tight-binding band structure calcn. indicates that the Fermi surface of the SCN⁻ salt is open along the b* and c* directions, but the intermol. interactions between the donor columns are not so weak because of the three-dimensional network mediated by the protruded tellurium atoms.
 CC 29-8 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 22, 28, 72, 75, 76, 77
 IT 12390-22-6 16385-59-4 22505-56-2 22505-58-4 34249-07-5
 81412-07-9 189815-64-3
 RL: RGT (Reagent); RACT (Reactant or reagent)
 (preparation, theor., and exptl. study of mol. conductors based on dimethylanthrabisditellurole and tetramethylnaphthobisditellurole peri-ditellurium-bridged donors)
 IT 189815-64-3
 RL: RGT (Reagent); RACT (Reactant or reagent)
 (preparation, theor., and exptl. study of mol. conductors based on dimethylanthrabisditellurole and tetramethylnaphthobisditellurole peri-ditellurium-bridged donors)
 RN 189815-64-3 CAPLUS
 CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-kN)-, (T-4)-, (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX NAME)
 CM 1
 CRN 48236-06-2
 CMF C36 H30 N P2



CM 2

CRN 17111-95-4

CMF F6 Sb

CCI CCS



REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L143 ANSWER 4 OF 16 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2003:369772 CAPLUS Full-text

DOCUMENT NUMBER: 139:110572

TITLE: Nickel Complexes of
o-Amidochalcogenophenolate(2-)/o-
Iminochalcogenobenzosemiquinonate(1-) π -Radical:
Synthesis, Structures, Electron Spin Resonance, and
X-ray Absorption Spectroscopic Evidence

AUTHOR(S): Hsieh, Chung-Hung; Hsu, I-Jui; Lee, Chien-Ming; Ke,
Shyue-Chu; Wang, Tze-Yuan; Lee, Gene-Hsiang; Wang, Yu;
Chen, Jin-Ming; Lee, Jyh-Fu; Liaw, Wen-Feng

CORPORATE SOURCE: Department of Chemistry, National Tsing Hua
University, Hsinchu, 30043, Taiwan

SOURCE: Inorganic Chemistry (2003), 42(12), 3925-3933
CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:110572

AB The preparation of trans-[Ni(SeC₆H₄-o-NH)₂]- (1), cis-[Ni(TeC₆H₄-o-NH)₂]- (2), trans-[Ni(SC₆H₄-o-NH)₂]- (3), and [Ni(SC₆H₄-o-S)₂]- (4) by oxidative addition of 2-aminophenyl dichalcogenides to anionic [Ni(CO)(SePh)₃]- proves to be a successful approach in this direction. The cis arrangement of the two Te atoms in complex 2 is attributed to the intramol. Te...Te contact interaction (Te...Te contact distance of 3.455 Å). The UV-visible electronic spectra of complexes 1 and 2 exhibit an intense absorption at 936 and 942 nm, resp., with extinction coefficient $\epsilon > 10,000 \text{ L mol}^{-1} \text{ cm}^{-1}$. The observed small g anisotropy, the principal g values at $g_1 = 2.036$, $g_2 = 2.062$, and $g_3 = 2.120$ for 1 and $g_1 = 2.021$, $g_2 = 2.119$, and $g_3 = 2.250$ for 2, resp., indicates the ligand radical character accompanied by the contribution of the singly occupied d orbital of Ni(III). The x-ray absorption spectra of all four complexes show LIII peaks at .apprx.854.5 and .apprx.853.5 eV. This may indicate a variation of contribution of the Ni(II)-Ni(III) valence state. According to the DFT calcn., the unpaired electron of complex 1 and 2 is mainly distributed on the 3d_{xz} orbital of the Ni ion and on the 4p_z orbital of

Se (Te, 5pz) as well as the 2pz orbital of N of the ligand. From x-ray structural data, UV-visible absorption, ESR, magnetic properties, DFT computation, and x-ray absorption (K- and L-edge) spectroscopy, the monoanionic trans-[Ni(SeC6H4-o-NH)2]- and cis-[Ni(TeC6H4-o-NH)2]- complexes are appositely described as a resonance hybrid form of Ni(III)-bis(o-amidochalcogenophenolato(2-)) and Ni(II)-(o-amidochalcogenophenolato(2-))-(o-iminochalcogenobenzosemiquinonato(1-)) π -radical; i.e., complexes 1 and 2 contain delocalized oxidation levels of the Ni ion and ligands.

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 65, 72, 75

IT 557766-89-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure and ESR and SOMO's from DFT calcns.)

IT 558451-97-1P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(preparation and crystal structure and cyclic voltammetry and ESR and

SOMO's

from DFT calcns. and reaction with aminothiophenol and benzenedithiol)

IT 63870-44-0 72695-32-0 196961-63-4

RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for preparation of nickel amidochalcogenophenolato iminochalcogenobenzosemiquinonato complexes)

IT 557766-89-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure and ESR and SOMO's from DFT calcns.)

RN 557766-89-9 CAPLUS

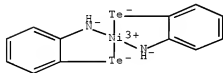
CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-kN)-,
(T-4)-, (SP-4-2)-bis[2-(amino-kN)benzenetellurolato(2-)-
kTe]nickelate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 557766-88-8

CMF C12 H10 N2 Ni Te2

CCI CCS



CM 2

CRN 48236-06-2

CMF C36 H30 N P2

Ph₃⁺P=N=PPh₃

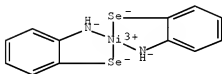
IT 558451-97-1P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(preparation and crystal structure and cyclic voltammetry and ESR and SOMO's from DFT calcs. and reaction with aminothiophenol and benzenedithiol)
 RN 558451-97-1 CAPLUS
 CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-kN)-, (T-4)-, (SP-4-1)-bis[2-(amino-kN)benzeneselenolato(2-)-kSe]nickelate(1-) (9CI) (CA INDEX NAME)

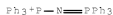
CM 1

CRN 558451-96-0
 CMF C12 H10 N2 Ni Se2
 CCI CCS



CM 2

CRN 48236-06-2
 CMF C36 H30 N P2



IT 196961-63-4

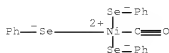
RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant for preparation of nickel amidochalcogenophenolato iminochalcogenobenzosemiquinonato complexes)

RN 196961-63-4 CAPLUS

CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-kN)-, (T-4)-, (SP-4-2)-tris(benzeneselenolato)carbonylnickelate(1-) (1:1) (CA INDEX NAME)

CM 1

CRN 196961-62-3
 CMF C19 H15 Ni O Se3
 CCI CCS



CM 2

CRN 48236-06-2

CMF C36 H30 N P2

 $\text{Ph}_3\text{P}-\text{P}=\text{N}=\text{PPh}_3$

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L143 ANSWER 5 OF 16 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2003:37851 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 138:321369

TITLE: Neutral and cationic (η^6 -arene)-ruthenium(II) complexes containing the iminophosphorane-phosphine ligand $\text{Ph}_2\text{PCH}_2\text{P}(\text{N-p-C}_5\text{F}_4\text{N})\text{Ph}_2$: influence of the arene ring in catalytic transfer hydrogenation of cyclohexanone

AUTHOR(S): Cadierno, Victorio; Crochet, Pascale; Garcia-Alvarez, Joaquin; Garcia-Garrido, Sergio E.; Gimeno, Jose

CORPORATE SOURCE: Departamento de Quimica Organica e Inorganica, Facultad de Quimica, Instituto Universitario de Quimica Organometalica "Enrique Moles" (Unidad Asociada al CSIC), Universidad de Oviedo, Oviedo, E-33071, Spain

SOURCE: Journal of Organometallic Chemistry (2002), 663(1-2), 32-39

CODEN: JORCAI; ISSN: 0022-328X

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 138:321369

AB Ru(II) dimers $[\{\text{Ru}(\eta^6\text{-arene})(\mu\text{-Cl})\text{Cl}\}_2]$ [arene = Ph (1a), 1-Me $2\text{CH-4-MeC}_6\text{H}_4$ (1b), 1,3,5-Me $3\text{C}_6\text{H}_3$ (1c), 1,2,3,4-Me $4\text{C}_6\text{H}_2$ (1d), 1,2,4,5-Me $4\text{C}_6\text{H}_2$ (1e), C 6Me_6 (1f)] readily react with the iminophosphorane-phosphine ligand $\text{Ph}_2\text{PCH}_2\text{P}(\text{N-p-C}_5\text{F}_4\text{N})\text{Ph}_2$ (2), in CH_2Cl_2 at room temperature, to afford the neutral derivs. $[\text{Ru}(\eta^6\text{-arene})\text{Cl}_2(\text{k1-P-Ph}_2\text{PCH}_2\text{P}(\text{N-p-C}_5\text{F}_4\text{N})\text{Ph}_2)]$ (same arenes, 3a-3f, resp.) in 81-91% yields. Treatment of 3a-f with AgSbF_6 in CH_2Cl_2 yields 77-86% of the cationic species $[\text{Ru}(\eta^6\text{-arene})\text{Cl}(\text{k2-P,N-Ph}_2\text{PCH}_2\text{P}(\text{N-p-C}_5\text{F}_4\text{N})\text{Ph}_2)][\text{SbF}_6]$ (same arenes, 4a-f, resp.). The catalytic activity of complexes 3 and 4 in transfer hydrogenation of cyclohexanone by 2-propanol was studied. Among them, the cationic derivative $[\text{Ru}(\eta^6\text{-C}_6\text{Me}_6)\text{Cl}(\text{k2-P,N-Ph}_2\text{PCH}_2\text{P}(\text{N-p-C}_5\text{F}_4\text{N})\text{Ph}_2)][\text{SbF}_6]$ (4f) shows the highest activity. Electrochem. data for 3 and 4 are also reported.

CC 29-13 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 24, 72

IT 514845-68-2P 514845-69-3P 514845-71-7P

514845-73-9P 514845-75-1P 514845-77-3P

RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)

(electrochem. redox, catalyst; preparation, electrochem. and catalytic activity of neutral and cationic (arene)ruthenium iminophosphorane-phosphine complexes in transfer hydrogenation of

cyclohexanone)

IT 514845-68-2P 514845-69-3P 514845-71-7P
 514845-73-9P 514845-75-1P 514845-77-3P
 RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering
 or chemical process); SPN (Synthetic preparation); PREP (Preparation);
 PROC (Process); USES (Uses)
 (electrochem. redox, catalyst; preparation, electrochem. and catalytic
 activity of neutral and cationic (arene)ruthenium
 iminophosphorane-phosphine complexes in transfer hydrogenation of
 cyclohexanone)

RN 514845-68-2 CAPLUS

CN Ruthenium(1+), (η^6 -benzene)chloro[N-[[[(diphenylphosphino-
 κ P)methyl]diphenylphosphoranylidene]-2,3,5,6-tetrafluoro-4-
 pyridinamine- κ N4]-, (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA
 INDEX NAME)

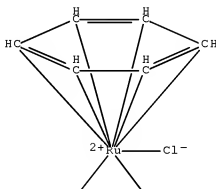
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CRN 514845-67-1

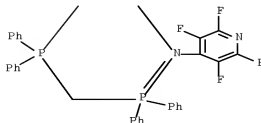
CMF C36 H28 Cl F4 N2 P2 Ru

CCI CCS

PAGE 1-A



PAGE 2-A



CM 2

CRN 17111-95-4

CMF F6 Sb

CCI CCS



RN 514845-69-3 CAPLUS

CN Ruthenium(1+), chloro[N-[[[(diphenylphosphino-
κP)methyl]diphenylphosphoranylidene]-2,3,5,6-tetrafluoro-4-
pyridinamine-κN4] [(1,2,3,4,5,6-η)-1-methyl-4-(1-
methylethyl)benzene]-, (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX
NAME)

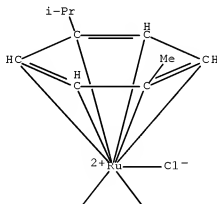
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CRN 444940-50-5

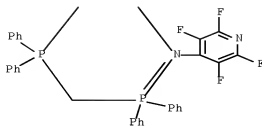
CMF C40 H36 Cl F4 N2 P2 Ru

CCI CCS

PAGE 1-A



PAGE 2-A



CM 2

CRN 17111-95-4

CMF F6 Sb

CCI CCS



RN 514845-71-7 CAPLUS

CN Ruthenium(1+), chloro[N-[(diphenylphosphino-
κP)methyl]diphenylphosphoranylidene]-2,3,5,6-tetrafluoro-4-
pyridinamine-κN4] [(1,2,3,4,5,6-η)-1,3,5-trimethylbenzene]-,
(OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX NAME)

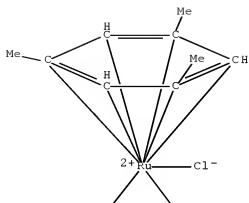
CM 1

CRN 514845-70-6

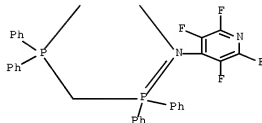
CMF C39 H34 Cl F4 N2 P2 Ru

CCI CCS

PAGE 1-A



PAGE 2-A



CM 2

CRN 17111-95-4

CMF F6 Sb

CCI CCS



RN 514845-73-9 CAPLUS

CN Ruthenium(1+), chloro[N-[[[(diphenylphosphino-
 κP)methyl]diphenylphosphoranylidene]-2,3,5,6-tetrafluoro-4-
 pyridinamine-κN4] [(1,2,3,4,5,6-η)-1,2,3,4-tetramethylbenzene]-,
 (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX NAME)

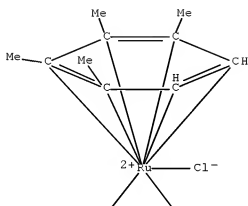
CM 1

CRN 514845-72-8

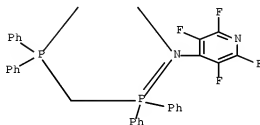
CMF C40 H36 Cl 1 F4 N2 P2 Ru

CCI CCS

PAGE 1-A



PAGE 2-A



CM 2

CRN 17111-95-4

CMF F6 Sb

CCI CCS

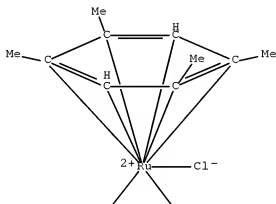


RN 514845-75-1 CAPLUS
 CN Ruthenium(1+), chloro[N-[(diphenylphosphino-
 κ P)methyl]diphenylphosphoranylidene]-2,3,5,6-tetrafluoro-4-
 pyridinamine- κ N4][(1,2,3,4,5,6- η)-1,2,4,5-tetramethylbenzene]-,
 (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX NAME)

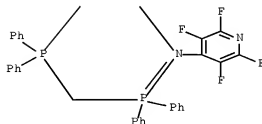
CM 1

CRN 514845-74-0
 CMF C40 H36 Cl F4 N2 P2 Ru
 CCI CCS

PAGE 1-A



PAGE 2-A



CM 2

CRN 17111-95-4
 CMF F6 Sb
 CCI CCS

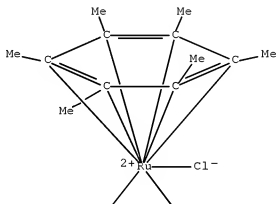


RN 514845-77-3 CAPLUS
 CN Ruthenium(1+), chloro[N-[(diphenylphosphino-
 κP)methyl]diphenylphosphoranylidene]-2,3,5,6-tetrafluoro-4-
 pyridinamine-κN4] [(1,2,3,4,5,6-η)-hexamethylbenzene]-,
 (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX NAME)

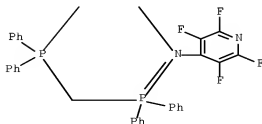
CM 1

CRN 514845-76-2
 CMF C42 H40 Cl F4 N2 P2 Ru
 CCI CCS

PAGE 1-A



PAGE 2-A



CM 2

CRN 17111-95-4

CMF F6 Sb

CCI CCS



REFERENCE COUNT: 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L143 ANSWER 6 OF 16 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2002:772540 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 138:26019

TITLE: High-Performance Nanocatalysts for Single-Step Hydrogenations

AUTHOR(S): Thomas, John Meurig; Johnson, Brian F. G.; Raja, Robert; Sankar, Gopinathan; Midgley, Paul A.

CORPORATE SOURCE: Davy Faraday Research Laboratory, Royal Institution of Great Britain, London, W1S 4BS, UK

SOURCE: Accounts of Chemical Research (2003), 36(1), 20-30
CODEN: ACHRE4; ISSN: 0001-4842

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review. Bimetallic nanoparticles (Ru6Pd6, Ru6Sn, Ru10Pt2, Ru5Pt, Ru2Cu4, and Ru2Ag4) anchored within silica nanopores exhibit high activity and frequently high selectivity, depending on composition of the nanocatalyst, in a number of single-step (and often solvent-free) hydrogenations at low temps. (333-373 K). The selective hydrogenation of polyenes (such as 1,5,9-cyclododecatriene and 2,5-norbornadiene) is especially efficient. Good performance was found with nanoparticle catalysts in hydrogenation of di-Me terephthalate to 1,4-cyclohexane-dimethanol and of benzoic acid to cyclohexane carboxylic acid or to cyclohexene-1-carboxylic acid. The catalysts also were used in conversion of benzene to cyclohexene (or cyclohexane), the latter being important for production of Nylon. Isolated atoms of noble metals (Pd, Rh, and Pt) in low oxidation states, appropriately complexed and tethered to the inner walls of nanoporous (ca. 3 nm diameter) silica, are promising enantioselective hydrogenation catalysts. Nanoporous carbons, and other nanoporous oxides, may also be used to anchor and tether these catalysts.

CC 45-0 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 67

ST review bimetallic nanoparticle hydrogenation catalyst silica support; nanopore silica anchor ruthenium bimetallic catalyst hydrogenation review; enantioselective hydrogenation catalyst ruthenium carbonylate bimetallic nanoparticle review

IT Catalyst supports
(high-performance bimetallic nanocatalysts from carbonylates anchored within silica nanopores for single-step selective hydrogenation of polyenes)

IT 160180-36-9 313345-94-7 405066-39-9

RL: CAT (Catalyst use); USES (Uses)
(carbonylate precursor; high-performance bimetallic nanocatalysts from carbonylates anchored within silica nanopores for single-step selective hydrogenation of polyenes)

IT 7631-86-9, Silica, uses
RL: CAT (Catalyst use); USES (Uses)
(nanoporous support; high-performance bimetallic nanocatalysts from carbonylates anchored within silica nanopores for single-step selective hydrogenation of polyenes)

IT 313345-94-7
RL: CAT (Catalyst use); USES (Uses)
(carbonylate precursor; high-performance bimetallic nanocatalysts from carbonylates anchored within silica nanopores for single-step selective hydrogenation of polyenes)

RN 313345-94-7 CAPLUS

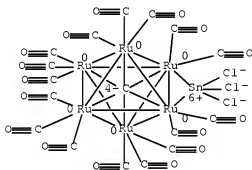
CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-KN)-, (T-4)-, hexadecacarbonyl-μ6-methanetetrayl(trichlorostannate)hexaruthenate(1-) cluster (9CI) (CA INDEX NAME)

CM 1

CRN 313345-93-6

CMF C17 C13 O16 Ru6 Sn

CCI CCS



CM 2

CRN 48236-06-2

CMF C36 H30 N P2

$\text{Ph}_3\text{P}-\text{N}=\text{PPh}_3$

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L143 ANSWER 7 OF 16 CAPLUS COPYRIGHT 2009 ACS ON STN
ACCESSION NUMBER: 2002:175257 CAPLUS [Full-text](#)
DOCUMENT NUMBER: 136:360968
TITLE: Redox Chemistry of Tellurium

Bis(tert-butylamido)cyclodiphosph(V)azane Disulfide and Diselenide Systems: A Spectroscopic and Structural Study

AUTHOR(S): Briand, Glen G.; Chivers, Tristram; Schatte, Gabriele

CORPORATE SOURCE: Department of Chemistry, The University of Calgary, Calgary, AB, T2N 1N4, Can.

SOURCE: Inorganic Chemistry (2002), 41(7), 1958-1965
CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The redox chemical of Te-chalcogenide systems was examined via reactions of TeCl₄ with Li[tBuN(E)P(μ-NtBu)2P(E)N(H)tBu] (3a, E = S; 3b, E = Se). Reaction of TeCl₄ with 2 equiv of 3a in THF generates the Te(IV) species TeCl₃[HcddS2][H2cddS2] 4a [cddS2 = tBuN(S)P(μ-NtBu)2P(S)NtBu] at short reaction times, while reduction to the Te(II) complex TeCl₂[H2cddS2]2 5a is observed at longer reaction times. The analogous reaction of TeCl₄ and 3b yields only the Te(II) complex TeCl₂[H2cddSe2]2 5b. The use of 4 equiv of 3a or 3b produces Te[HcddE2]2 (6a (E = S) or 6b (E = Se)). N. NMR and EPR studies of the 5:1 reaction of 3a and TeCl₄ in THF or C₆D₆ indicate that the formation of the Te(II) complex 6a via decomposition of a Te(IV) precursor occurs via a radical process to generate H2cddS2. Abstraction of H from THF solvent is proposed to account for the formation of bis(tert-butylamido)cyclodiphosph(V)azane disulfide 2a. These results are discussed in the context of known Te-S and Te-N redox systems. The x-ray crystal structures of 4a·[C7H8]0.5, 5a, 5b, 6a·[C6H14]0.5, and 6b·[C6H14]0.5 were determined. The cyclodiphosph(V)azane dichalcogenide ligand chelates the Te center in an E,N (E = S, Se) manner in 4a·[C7H8]0.5, 6a·[C6H14]0.5 and 6b·[C6H14]0.5 with long Te-N bond distances in each case. Further, a neutral H2cddS2 ligand weakly coordinates the Te center in 4a·[C7H8]0.5 via a single chalcogen atom. A similar monodentate interaction of two neutral ligands with a TeCl₂ unit is observed for 5a and 5b, giving a trans square planar arrangement at Te.

CC 72-7 (Electrochemistry)

Section cross-reference(s): 75

IT 421549-52-2P 421549-53-3P 421549-54-4P
421549-55-5P 421549-56-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal structure of)

IT 339050-32-7 347189-80-4

RL: RCT (Reactant); RACT (Reactant or reagent) (reactant for preparation of tellurium bis(tert-butylamido)cyclodiphosphazane complexes)

IT 421549-52-2P 421549-53-3P 421549-54-4P
421549-55-5P 421549-56-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal structure of)

RN 421549-52-2 CAPLUS

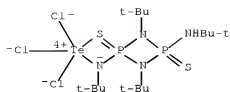
CN Tellurium, trichloro[[cis-N,N',1,3-tetrakis(1,1-dimethylethyl)-1,3,2,4-diazadiphosphetidine-2,4-diamine-κN2] 2-(sulfide-κS) 4-sulfidato]-, (TB-5-11)-, compd. with methylbenzene and cis-N,N',1,3-tetrakis(1,1-dimethylethyl)-1,3,2,4-diazadiphosphetidine-2,4-diamine 2,4-disulfide (2:1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 421549-51-1

CMF C16 H37 Cl3 N4 P2 S2 Te

CCI CCS

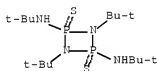


CM 2

CRN 155930-73-7

CMF C16 H38 N4 P2 S2

Relative stereochemistry.



CM 3

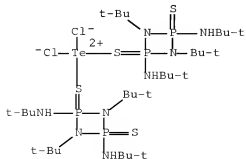
CRN 108-88-3

CMF C7 H8

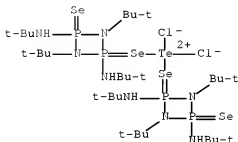


RN 421549-53-3 CAPLUS

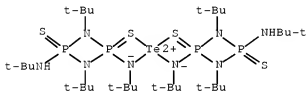
CN Tellurium, dichlorobis[*cis*-N,N',1,3-tetrakis(1,1-dimethylethyl)-1,3,2,4-diazadiphosphetidine-2,4-diamine 2-(sulfide-κS) 4-sulfide]-, (SP-4-1)- (9CI) (CA INDEX NAME)



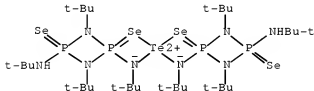
RN 421549-54-4 CAPLUS

CN Tellurium, dichlorobis[*cis*-N,N',1,3-tetrakis(1,1-dimethylethyl)-1,3,2,4-diazadiphosphetidine-2,4-diamine 2-(selenide-κSe) 4-selenide]-, (SP-4-1)- (9CI) (CA INDEX NAME)

RN 421549-55-5 CAPLUS

CN Tellurium, bis[*cis*-N,N',1,3-tetrakis(1,1-dimethylethyl)-1,3,2,4-diazadiphosphetidine-2,4-diamine-κN2] 2-(sulfide-κS) 4-sulfidato]-, (SP-4-2)- (9CI) (CA INDEX NAME)

RN 421549-56-6 CAPLUS

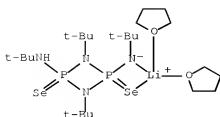
CN Tellurium, bis[*cis*-N,N',1,3-tetrakis(1,1-dimethylethyl)-1,3,2,4-diazadiphosphetidine-2,4-diamine-κN2] 2-(selenide-κSe) 4-selenidato]-, (SP-4-2)- (9CI) (CA INDEX NAME)

IT 347189-80-4

RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for preparation of tellurium
bis(tert-butylamido)cyclodiphosphazane complexes)

RN 347189-80-4 CAPLUS

CN Lithium, bis(tetrahydrofuran)[*cis*-[N,N',1,3-tetrakis(1,1-dimethylethyl)-1,3,2,4-diazadiphosphetidine-2,4-diamine-κN2] 2-(selenide-κSe) 4-selenidato]-, (T-4)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 75 THERE ARE 75 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L143 ANSWER 8 OF 16 CAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2001:284430 CAPLUS Full-text

DOCUMENT NUMBER: 135:62961

TITLE: Solvent-free, low-temperature, selective hydrogenation of polyenes using a bimetallic nanoparticle Ru - Sn catalyst

AUTHOR(S): Hermans, Sophie; Raja, Robert; Thomas, John M.; Johnson, Brian F. G.; Sankar, Gopinathan; Gleeson, David

CORPORATE SOURCE: Department of Chemistry, University of Cambridge, Cambridge, CB2 1EW, UK

SOURCE: Angewandte Chemie, International Edition (2001), 40(7), 1211-1215

CODEN: ACIEF5; ISSN: 1433-7851

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The catalytic performance was studied of a supported Ru6Sn nanoparticle and compared with that of finely dispersed bimetallic catalysts, i.e., Ag-Ru, Cu-Ru, and Pd-Ru. The precursor (PPN)[Ru6C(CO)16SnCl3] [PPN: bis(triphenylphosphine) iminium cation] was obtained in a two step reaction from carbidoheptaruthenium cluster Ru6C(CO)17; another cluster, [Ru6C(CO)16SnCl2] was also evaluated. Mesoporous silica MCM-41 was loaded with either cluster precursor via a slurry process; IR and EXAFS data indicate that the carbonyl cluster remained intact throughout the process, and all carbonyl ligands are removed during heat treatment at 200° for activation, with the metal core becoming firmly attached to the siliceous surface. The effect of temperature on selectivity in the catalytic hydrogenation of 1,5,9-cyclododecatriene was studied; at temps. as low as 80°, solvent-free hydrogenation to cyclododecene is 70% selective, and well in excess of 90% selective at 100°. The selectivity of nanocatalysts for solvent-free hydrogenation can be regulated by changing the nature of the constituents in the active phase.

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 67

ST ruthenium tin nanoparticle prepn selectivity hydrogenation catalyst; carbonyl ruthenium tin chloride precursor anchoring silica support; alkene selective hydrogenation ruthenium tin nanoparticle catalyst

IT Zeolite MCM-41

RL: CAT (Catalyst use); USES (Uses)

(support; catalyst preparation method and temperature effects on selectivity of bimetallic Ru6Sn nanoparticle in solvent-free hydrogenation of polyenes)

IT 313345-92-5 313345-94-7, Bis(triphenylphosphine)iminium
carbidoheptadecacarbonyl(trichlorostannyl)hexaruthenate(1-)
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalyst precursor; catalyst preparation method and temperature effects on
selectivity of bimetallic Ru6Sn nanoparticle in solvent-free
hydrogenation of polyenes)

IT 313345-94-7, Bis(triphenylphosphine)iminium
carbidoheptadecacarbonyl(trichlorostannyl)hexaruthenate(1-)
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalyst precursor; catalyst preparation method and temperature effects on
selectivity of bimetallic Ru6Sn nanoparticle in solvent-free
hydrogenation of polyenes)

RN 313345-94-7 CAPLUS

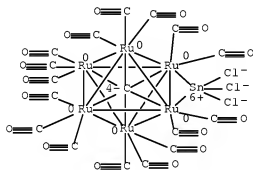
CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-kN)-,
(T-4)-, heptadecacarbonyl- μ_6 -
methanetetrayl(trichlorostannate)hexaruthenate(1-) cluster (9CI) (CA
INDEX NAME)

CM 1

CRN 313345-93-6

CMF C17 Cl3 O16 Ru6 Sn

CCI CCS



CM 2

CRN 48236-06-2

CMF C36 H30 N P2

Ph₃P=P=N=PPh₃

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L143 ANSWER 9 OF 16 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:48704 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 132:207913

TITLE: Novel Silicon- and Tin-Containing Ferrocenophanes and
Related Compounds as Lewis Acids

AUTHOR(S): Altmann, Reiner; Gausset, Olivier; Horn, Dagmar;

Jurkschat, Klaus; Schuermann, Markus; Fontani, Marco;
Zanella, Piero
CORPORATE SOURCE: Lehrstuhl fuer Anorganische Chemie II der Universitaet
Dortmund, Dortmund, D-44221, Germany
SOURCE: Organometallics (2000), 19(4), 430-443
CODEN: ORGND7; ISSN: 0276-7333
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 132:207913

AB The syntheses of 1,1'-bis(chloromethyl)dimethylsilyl)ferrocene, $\text{fc}(\text{SiMe}_2\text{CH}_2\text{Cl})_2$ (2), of open-chain ferrocene- and Si-containing organotin(IV) compds. ($\text{FcMe}_2\text{SiCH}_2$) 2SnPh_2 (3), ($\text{FcMe}_2\text{SiCH}_2\text{SnXPh}$) 2CH_2 (4, X = Ph; 7, X = I; 8, X = Cl; 9, X = F), $\text{fc}(\text{SiMe}_2\text{CH}_2\text{SnXR}_2)_2$ (5, R = X = Ph; 6, R = X = Me; 10, R = Ph, X = I; 11, R = Me, X = Cl; 12, R = Ph, X = Cl; 13, R = Ph, X = F), $\text{fc}(\text{SiMe}_2\text{CH}_2\text{SnPh}_2\text{CH}_2\text{SiMe}_2\text{Fc})_2$ (14), and of the ferrocenophanes [$\text{fc}(\text{SiMe}_2\text{CH}_2\text{SnXRCH}_2\text{SiMe}_2)_2\text{fc}$] (15, R = X = Me; 16, R = X = Ph; 17, R = Ph, X = I; 18, R = Ph, X = F; 19, R = Ph, X = Cl; 20, R = Me, X = Cl) and two of their chloride complexes [(Ph 3P) 2N] $2[\text{fc}(\text{SiMe}_2\text{CH}_2\text{SnClRCH}_2\text{SiMe}_2)_2\text{fc}\cdot 2\text{Cl}]$ (22, R = Me; 23, R = Ph) are reported, and the mol. structures of 4, 16, 17, 19, 20, 22, and 23 are described. In solution, the halogen-substituted ferrocenophanes 17-19 undergo cis-trans isomerization, the rate of which is enhanced by addition of halide ions. Variable-temperature ^{119}Sn and ^{19}F NMR studies in solution indicate that the fluoro derivs. 9, 13, and 18 react with different molar equivalents of F $^-$ ions to give the 1:1 and 1:2 [Bu 4N] $^+[\text{FcMe}_2\text{SiCH}_2\text{SnFPh}]_2\text{CH}_2\cdot n\text{F}^-$ (9a,b, n = 1; 9c, n = 2), [Bu 4N] $^+2[\text{13}\cdot 2\text{F}]_2^-$, and [Bu 4N] $^+[\text{18}\cdot \text{F}]^-$ and [Bu 4N] $^+2[\text{18}\cdot 2\text{F}]_2^-$, resp. A more extended electrochem. study points out that the species containing halogen-substituted Sn groups are more sensitive to anions than their analogs containing diphenyltin groups.

CC 29-12 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 72, 75, 79

IT 260441-91-6P 260441-92-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

IT 260415-75-6P 260415-78-9P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and mol. structure of)

IT 215925-66-9P, 1,1'-Bis(((chlorodimethylstannyl)methyl)dimethylsilyl)ferrocene 260415-71-2P, Bis(((1'-((chlorodimethylstannyl)methyl)dimethylsilyl)ferrocenyl)dimethylsilyl)methyl)dimethylstannane 260415-90-5P 260415-96-1P 260416-06-6P 260416-12-4P 260416-21-5P 260416-37-3P 260442-20-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 260441-91-6P 260441-92-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

RN 260441-91-6 CAPLUS

CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-kN)-, (T-4)-, tetrachlorobis[μ -[1,1'-ferrocenediylbis[(dimethylsilylene)methylene]]]dimethyldistannate(2-), compd. with dichloromethane (2:1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 75-09-2
CMF C H2 Cl2

Cl-CH₂-Cl

CM 2

CRN 260415-75-6

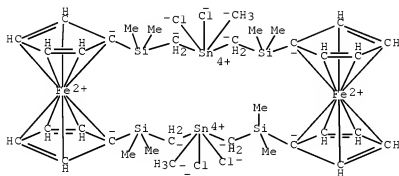
CMF C36 H30 N P2 . 1/2 C34 H54 Cl4 Fe2 Si4 Sn2

CM 3

CRN 260415-74-5

CMF C34 H54 Cl4 Fe2 Si4 Sn2

CCI CCS



CM 4

CRN 48236-06-2

CMF C36 H30 N P2

Ph₃P=P=N=PPh₃

RN 260441-92-7 CAPLUS

CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-κN)-, (T-4)-, tetrachlorobis[μ-[1,1'-ferrocenediylbis[(dimethylsilylene)methylene]]]diphenyldistannate(2-), compd. with dichloromethane (2:1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 75-09-2

CMF C H2 Cl2

Cl-CH₂-Cl

CM 2

CRN 260415-78-9

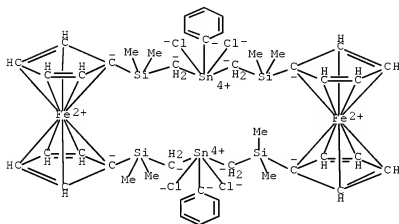
CMF C44 H58 Cl4 Fe2 Si4 Sn2 . 2 C36 H30 N P2

CM 3

CRN 260415-77-8

CMF C44 H58 Cl4 Fe2 Si4 Sn2

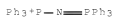
CCI CCS



CM 4

CRN 48236-06-2

CMF C36 H30 N P2



IT 260415-75-6P 260415-78-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and mol. structure of)

RN 260415-75-6 CAPLUS

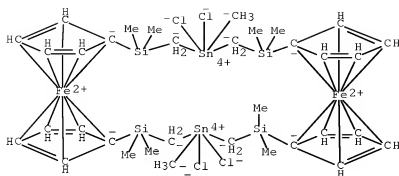
CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-kN)-,
(T-4)-, stereoisomer of tetrachlorobis[μ-[1,1'-
ferrocenediylbis[(dimethylsilylene)methylene]]]dimethyldistannate(2-)
(2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 260415-74-5

CMF C34 H54 Cl4 Fe2 Si4 Sn2

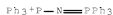
CCI CCS



CM 2

CRN 48236-06-2

CMF C36 H30 N P2



RN 260415-78-9 CAPLUS

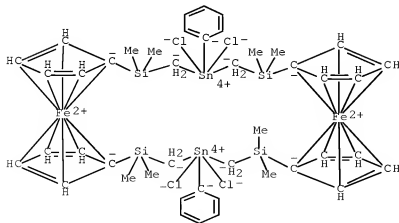
CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-κN)-, (T-4)-, stereoisomer of tetrachlorobis[μ-[1,1'-ferrocenediylbis[(dimethylsilylene)methylene]]]diphenyldistannate(2-) (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 260415-77-8

CMF C44 H58 Cl4 Fe2 Si4 Sn2

CCI CCS



CM 2

CRN 48236-06-2

CMF C36 H30 N P2



IT 260415-90-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 260415-90-5 CAPLUS

CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-kN)-,
(T-4)-, (TB-5-11)-dichloro[chloro[(ferrocenyldimethylsilyl)methyl]phenylis
tannyl)methyl][(ferrocenyldimethylsilyl)methyl]phenylstannate(1-) (9CI)
(CA INDEX NAME)

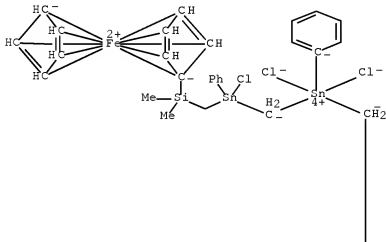
CM 1

CRN 260415-89-2

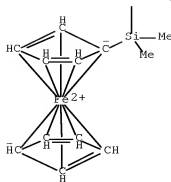
CMF C39 H46 Cl3 Fe2 Si2 Sn2

CCI CCS

PAGE 1-A



PAGE 2-A



CM 2

CRN 48236-06-2

CMF C36 H30 N P2

Ph₃P=N=PPh₃

REFERENCE COUNT: 89 THERE ARE 89 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L143 ANSWER 10 OF 16 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1997:212498 CAPLUS Full-text

DOCUMENT NUMBER: 126:349623

ORIGINAL REFERENCE NO.: 126:67867a,67870a

TITLE: Synthesis of some onium salts and their comparison as cationic photoinitiators in an epoxy resist

AUTHOR(S): Everett, J. P.; Schmidt, D. L.; Rose, G. D.; Argritis, P.; Aidinis, C. J.; Hatzakis, M.

CORPORATE SOURCE: Epoxy Products R and D, Dow Deutschland Inc., Rheinmuenster, D-77836, Germany

SOURCE: Polymer (1997), 38(7), 1719-1723

CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Several onium salts have been synthesized and compared as cationic photoinitiators in an epoxy resist. 1-(4-Hydroxy-3-methylphenyl)tetrahydrothiophenium hexafluoroantimonate exposed at 365 nm gave the best results, due to its superior absorption at this wavelength. A series of bis-(tri-Ph phosphoranylidene) ammonium salts performed poorly with 254 nm, 365 nm and E-beam irradiation even with the addition of photosensitizer. Tri-Ph sulfonium hexafluoroantimonate and tri-Ph sulfonium triflate formulated the most sensitive epoxy resist materials to both 254 nm and E-beam radiation sources (0.32 mJ cm⁻² and 0.3 μC cm⁻², 59.2 mJ cm⁻² and 8.0 μC cm⁻² at 20 kV, resp.).

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 87189-98-8P 96412-33-8P 189815-59-6P,
1-(4-Hydroxy-3-methylphenyl)tetrahydrothiophenium hexafluoroantimonate

189815-60-9P, 1-(4-Hydroxy-3-methylphenyl)tetrahydrothiophenium triflate
189815-62-1P 189815-64-3P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(synthesis of onium salts and their lithog. evaluation as cationic photoinitiators in epoxy resist)

IT 87189-90-0P 96412-33-8P 189815-64-3P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(synthesis of onium salts and their lithog. evaluation as cationic photoinitiators in epoxy resist)

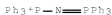
RN 87189-90-0 CAPLUS

CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-kN)-, (T-4)-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 48236-06-2

CMF C36 H30 N P2



CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



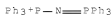
RN 96412-33-8 CAPLUS

CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-kN)-, (T-4)-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 48236-06-2

CMF C36 H30 N P2



CM 2

CRN 37181-39-8

CMF C F3 O3 S



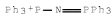
RN 189815-64-3 CAPLUS

CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-KN)-, (T-4)-, (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 48236-06-2

CMF C36 H30 N P2



CM 2

CRN 17111-95-4

CMF F6 Sb

CCI CCS



L143 ANSWER 11 OF 16 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1994:163472 CAPLUS Full-text

DOCUMENT NUMBER: 120:163472

ORIGINAL REFERENCE NO.: 120:28827a,28830a

TITLE: Process for preparation of acetic acid or methyl acetate from methanol and catalysis by ruthenium(II)-tin(II) cluster complexes

INVENTOR(S): Shinoda, Sumio

PATENT ASSIGNEE(S): Daicel Chem, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.

KIND DATE

APPLICATION NO.

DATE

JP 05301840	A	19931116	JP 1992-269736	19920910
WO 9405421	A1	19940317	WO 1993-JP1283	19930909
W: US				
RW: DE, FR, GB				
EP 626201	A1	19941130	EP 1993-919637	19930909
R: DE, FR, GB				
US 5393919	A	19950228	US 1994-204343	19940309
PRIORITY APPLN. INFO.:			JP 1992-78379	A1 19920227
			JP 1992-269736	A 19920910
			WO 1993-JP1283	W 19930909

OTHER SOURCE(S): CASREACT 120:163472; MARPAT 120:163472

AB Acetic acid or AcOMe is prepared by reacting MeOH in the presence of a solid catalyst in the gas phase. The solid catalyst comprises ruthenium(II)-tin(II) cluster complexes. The latter complexes are supported on a carrier containing at least one component selected from activated charcoal, silica, clay mineral, copper oxide, alumina, titania, and zirconia. The solid catalyst is an anion exchanger ion-exchanged with anions of the ruthenium(II)-tin(II) cluster complexes. The ruthenium(II)-tin(II) cluster complexes are represented by the formula $[Ru(SnX_3)mYn].Z$ [X = halo; Y = P(Ra)₃, RbCN; Ra = alkyl, cycloalkyl, aryl, aralkyl, alkoxy, aryloxy, arylalkoxy; Rb = alkyl, cycloalkyl, aryl, aralkyl; m + n = 6; n = 0,1; Z = counter cation]. The anion exchanger is a hydrotalcite represented by $[Ma_2 \cdot 2xMb_3 \cdot 2(OH)_4 \cdot 4]2^+ \cdot [Ay]_2/y \cdot zH_2O$ (Ma = divalent metal; Mb = trivalent; Ay = y valent anion; x, y = natural number; Z \geq 0). Acetic acid or AcOMe is prepared from MeOH in one step. The catalyst concentration is increased and the loss of the catalyst activity is prevented. Thus, 1 μ L MeOH together with He (carrier gas) was introduced into a reactor packed with a catalyst $[(Ph_3P)_2N][Ru(SnCl_3)_6]$ supported on CuO-Cr₂O₃/SiO₂ (preparation given) at 200° to give AcOH 0.004 + 10⁻⁵, AcOMe 0.006 + 10⁻⁵, HCO₂Me 0.001 + 10⁻⁵, and methylal 0.001 + 10⁻⁵.

IC ICM C07C053-08

ICS B01J023-62; C07C051-235; C07C067-40; C07C069-14

ICA C07B061-00

CC 23-17 (Aliphatic Compounds)

IT Charcoal

RL: CAT (Catalyst use); USES (Uses)

(activated, catalyst support, ruthenium complexes-supported with, catalyst, for one-step oxidation of methanol to acetic acid or Me acetate)

IT 1317-38-0, Copper(II) oxide, uses

RL: USES (Uses)

(catalyst support containing chromium oxide and silica and, ruthenium complexes-supported with, catalyst, for one-step oxidation of methanol to acetic acid or Me acetate)

IT 7631-86-9, Silica, uses

RL: USES (Uses)

(catalyst support containing copper oxide and chromium oxide and, ruthenium complexes-supported with, catalyst, for one-step oxidation of methanol to acetic acid or Me acetate)

IT 1308-38-9, Chromium oxide (Cr₂O₃), uses 1314-13-2, Zinc oxide, uses

RL: USES (Uses)

(catalyst support containing copper oxide and silica and, ruthenium complexes-supported with, catalyst, for one-step oxidation of methanol to acetic acid or Me acetate)

IT 153469-91-1

RL: CAT (Catalyst use); USES (Uses)

(catalyst, on copper oxide-chromium oxide-silica support, for one-step oxidation of methanol to acetic acid or Me acetate)

IT 153469-91-1

RL: CAT (Catalyst use); USES (Uses)

(catalyst, on copper oxide-chromium oxide-silica support, for one-step oxidation of methanol to acetic acid or Me acetate)

RN 153469-91-1 CAPLUS

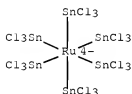
CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (I-4)-, (OC-6-11)-hexakis(trichlorostannyl)ruthenate(4-) (4:1) (9CI) (CA INDEX NAME)

CM 1

CRN 82641-14-3

CMF C118 Ru Sn6

CCI CCS



CM 2

CRN 48236-06-2

CMF C36 H30 N P2



L143 ANSWER 12 OF 16 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1991:504621 CAPLUS Full-text

DOCUMENT NUMBER: 115:104621

ORIGINAL REFERENCE NO.: 115:17743a,17746a

TITLE: Icosahedral antimony nickel carbonyl clusters [Ni10Sb2(μ12-Ni){Ni(CO)3}2(CO)18]n- (n = 2, 3 or 4); synthesis, spectroscopic, electrochemical and bonding analysis. Crystal structures of [Ni10Sb2(μ12-Ni){Ni(CO)3}2(CO)18]n- (n = 2 or 3)

AUTHOR(S): Albano, Vincenzo G.; Demartin, Francesco; Iapalucci, Maria Carmela; Laschi, Franco; Longoni, Giuliano; Sironi, Angelo; Zanello, Piero

CORPORATE SOURCE: Dip. Chim. 'G. Ciamician', Bologna, 40126, Italy

SOURCE: Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1991), (150th Anniv. Celebration Issue), 739-48

CODEN: JCDTBI; ISSN: 0300-9246

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The new [Ni13Sb2(CO)24]n- (n = 2, 3, or 4) cluster anions have been isolated from the reaction of [Ni6(CO)12]2- with SbCl3 and have been characterized spectroscopically and electrochem. Their structures (n = 2 or 3), elucidated by x-ray diffraction studies, consist in Ni-centered icosahedral [Ni11Sb2(CO)18]n- moieties which display an unexpected electron count and

formally behave as exotic distibine bridging ligands. The compound $[\text{N}(\text{PPh}_3)_2]_2[\text{Ni}_2\text{Sb}_2(\text{CO})_{24}]$ is triclinic, space group $P\bar{1}$, with a 13.134(3), b 13.546(2), c 15.416(2) Å, α 109.54(1), β 91.47(2), γ 101.68(1)° and $Z = 1$, $R = 0.030$. $[\text{NMe}_3(\text{CH}_2\text{Ph})]_4[\text{Ni}_2\text{Sb}_2(\text{CO})_{24}]\text{Cl}$ is monoclinic, space group $C2/c$, with a 20.615(4), b 15.508(3), c 25.805(19) Å, β 99.21(4)° and $Z = 4$, $R = 0.034$. A bonding anal. of icosahedral Ni carbonyl clusters centered by a transition or a main group element, as well as non-centered, has been carried out. This indicates the relevance of both the cavity occupation and the number of ligands and the associated stereogeometry in determining the number of cluster valence electrons.

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 72, 73, 75

IT 130522-88-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

IT 130522-88-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

RN 130522-88-2 CAPLUS

CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-, tetra- μ -carbonyltetra- μ 3-carbonylhexadecacarbonyldi- μ 7-stibylidynetridecanickelate(2-) (30Ni-Ni) (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 130522-87-1

CMF C24 Ni13 O24 Sb2

CCI CCS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 48236-06-2

CMF C36 H30 N P2

$\text{Ph}_3\text{P}-\text{N}=\text{PPh}_3$

L143 ANSWER 13 OF 16 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1991:155910 CAPLUS Full-text

DOCUMENT NUMBER: 114:155910

ORIGINAL REFERENCE NO.: 114:26149a,26152a

TITLE: Capping considerations in main-group/transition-metal clusters: synthetic, structural, and theoretical

AUTHOR(S): discussions of $[\text{E}_2\text{Co}_4(\text{CO})_{10}(\mu\text{-CO})_-]/2-$ (E = Sb, Bi)
Albright, Thomas A.; Yee, Kyeong Ae; Saillard, Jean
Yves; Kahlal, Samia; Halet, Jean Francois; Leigh, J.
S.; Whitmire, Kenton H.

CORPORATE SOURCE: Dep. Chem., Univ. Houston, Houston, TX, 77005, USA

SOURCE: Inorganic Chemistry (1991), 30(6), 1179-90

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Unstable $\text{SbCo}_3(\text{CO})_{12}$ is generated from the reaction of SbCl_3 and $[\text{Na}(\text{Co}(\text{CO})_4)]$ in acidified aqueous solution The compound decomp. under a variety of

conditions to give varying mixts. of $[\text{Sb}_2\text{Co}_4(\text{CO})_{10}(\mu\text{-CO})]^-$ (I), $[\text{Sb}_2\text{Co}_4(\text{CO})_{10}(\mu\text{-CO})]^{2-}$ (II), and $[\text{Co}(\text{CO})_4]^-$. The 2 Co-Sb cluster compds. were isolated as Et_4N^+ or $\text{N}(\text{PPh}_3)_2^+$ salts. X-ray anal. show them to be isostructural with a tetrahedral Co_2Sb_2 core capped on the 2 CoSb_2 faces with $\text{Co}(\text{CO})_3$ groups. The $(\text{Ph}_3\text{P})_2\text{N}^+$ salt of I is orthorhombic, space group Pbca , $Z = 8$, $R = 0.053$, $R_w = 0.063$. The $(\text{Ph}_3\text{P})_2\text{N}^+$ salt of II is triclinic, space group $\text{P}1$, $Z = 2$, $R = 0.045$, $R_w = 0.057$. Cluster anions with the same formulation but with Bi replacing Sb, are not generated in the same fashion but can be accessed by the reduction of $\text{BiCo}_3(\text{CO})_9$ with CoCp_2 ($\text{Cp} = \eta^5\text{-C}_5\text{H}_5$). $[\text{Cp}_2\text{Co}][\text{Bi}_2\text{Co}_4(\text{CO})_{10}(\mu\text{-CO})]$ was characterized by single-crystal x-ray anal.: orthorhombic, space group Pbcn , $Z = 4$, $R = 0.052$, $R_w = 0.066$. Both I and its Bi analog are paramagnetic with ESR signals found at $g = 2.032$ and 2.107 , resp. The mono- and dianions are related to each other by chemical and electrochem. reversible 1-electron redox cycles: $\text{E}_1/2 = -0.54 \text{ V (Sb)}$, -0.61 V (Bi) . Considering the E-E interactions, the 3 compds. in this study are electron rich and violate normal electron counting rules. EHMO calcs. were carried out on these mols., and related derivs. The mols. can be regarded as either pentagonal bipyramids or bicapped tetrahedra. In both derivations the extra electrons enter into skeletal nonbonding or weakly antibonding MOs. The favored electron counts for other skeletal isomers and derivs. were determined and compared to experiment

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 65, 72, 75

IT 120410-87-9P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure and cyclic voltammetry and electron configuration of)

IT 120410-88-0P 132672-47-0P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure and electron configuration of)

IT 132672-46-9P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and cyclic voltammetry and electron configuration of)

IT 132672-49-2P 132672-50-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 120410-87-9P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure and cyclic voltammetry and electron configuration of)

RN 120410-87-9 CAPLUS

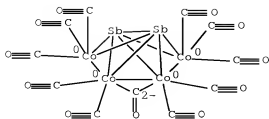
CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-, μ -carbonyldecacarbonyl $[\mu_4-(1,2\text{-distibenediylidene-Sb,Sb':Sb,Sb':Sb,Sb':Sb,Sb'})]\text{tetracobaltate}(1-)$ (3Co-Co) (9CI) (CA INDEX NAME)

CM 1

CRN 120410-86-8

CMF C11 Co4 O11 Sb2

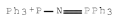
CCI CCS



CM 2

CRN 48236-06-2

CMF C36 H30 N P2



IT 120410-88-0P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure and electron configuration of)

RN 120410-88-0 CAPLUS

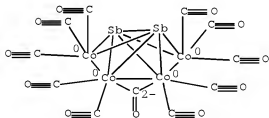
CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-,
μ-carbonyldecacarbonyl[μ4-(1,2-distibinediylidene-
Sb,Sb':Sb,Sb':Sb,Sb')tetracobaltate(2-)] (3Co-Co) (2:1) (9CI) (CA
INDEX NAME)

CM 1

CRN 120410-86-8

CMF C11 Co4 O11 Sb2

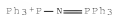
CCI CCS



CM 2

CRN 48236-06-2

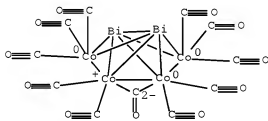
CMF C36 H30 N P2



IT 132672-46-9P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation and cyclic voltammetry and electron configuration of)
 RN 132672-46-9 CAPLUS
 CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-,
 dibismuthate- μ -carbonyldecacarbonyltetracobaltate(1-)
 (Bi-Bi) (8Bi-Co) (3Co-Co) (9CI) (CA INDEX NAME)

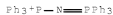
CM 1

CRN 115736-33-9
 CMF C11 Bi2 Co4 O11
 CCI CCS



CM 2

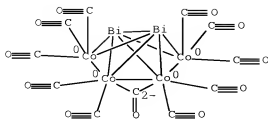
CRN 48236-06-2
 CMF C36 H30 N P2



IT 132672-50-5P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
 RN 132672-50-5 CAPLUS
 CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-,
 μ -carbonyldecacarbonyl[μ_4 -(1,2-dibismuthinediylidene-
 Bi,Bi':Bi,Bi':Bi,Bi':Bi,Bi')]tetracobaltate(2-) (3Co-Co) (2:1) (9CI) (CA
 INDEX NAME)

CM 1

CRN 132672-48-1
 CMF C11 Bi2 Co4 O11
 CCI CCS



CM 2

CRN 48236-06-2

CMF C36 H30 N P2

Ph₃P-F-N=PPh₃

L143 ANSWER 14 OF 16 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1989:201335 CAPLUS Full-text

DOCUMENT NUMBER: 110:201335

ORIGINAL REFERENCE NO.: 110:33284h,33285a

TITLE: Reversible redox processes in
main-group/transition-metal clusters: the
[Sb₂Co₄(CO)₁₀(μ-CO)]⁻²⁻ coupleAUTHOR(S): Leigh, J. Scott; Whitmire, Kenton H.; Yee, Kyeong Ae;
Albright, Thomas A.

CORPORATE SOURCE: Dep. Chem., Rice Univ., Houston, TX, 77251, USA

SOURCE: Journal of the American Chemical Society (1989),

111(7), 2726-7

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Paramagnetic [Sb₂Co₄(CO)₁₀(μ-CO)]⁻ undergoes a reversible 1-electron reduction (E 1/2 = -0.54 V vs. Ag/AgCl electrode) to [Sb₂Co₄(CO)₁₀(μ-CO)]²⁻. These mols., which are both electron-rich and do not obey any current electron counting formalism, are related by a reversible one-electron redox cycle in which the mol. framework is maintained for a main group/transition metal cluster containing a Sb-Sb bond. Upon reduction, the addnl. electron appears to enter an antibonding orbital which is primarily localized between the two cobalt atoms bridged by a carbonyl ligand. This is in agreement with MO calcns. at the extended Hückel level. The bonding in this mol. can be understood in terms of an electron precise [Sb₂Co₂(CO)₄(μ-CO)]₂-tetrahedron interacting with two Co(CO)₃ units. Single crystal x-ray analyses of the [Ph₃PN:PPh₃]⁺ salts of both compds. were completed.

CC 72-2 (Electrochemistry)

Section cross-reference(s): 75, 78

IT 120410-88-0

RL: PRP (Properties)

(crystal structure of)

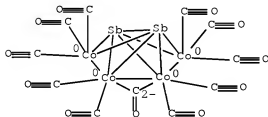
IT 120410-87-9

RL: PRP (Properties)

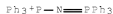
(cyclic voltammetry and crystal structure of)

IT 120410-88-0

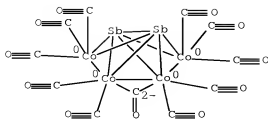
RL: PRP (Properties)
 (crystal structure of)
 RN 120410-88-0 CAPLUS
 CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-,
 μ -carbonyldecacarbonyl[μ_4 -(1,2-distibinediylidene-
 Sb,Sb':Sb,Sb':Sb,Sb':Sb,Sb')]tetracobaltate(2-) (3Co-Co) (2:1) (9CI) (CA
 INDEX NAME)
 CM 1
 CRN 120410-86-8
 CMF C11 Co4 O11 Sb2
 CCI CCS



CM 2
 CRN 48236-06-2
 CMF C36 H30 N P2



IT 120410-87-9
 RL: PRP (Properties)
 (cyclic voltammetry and crystal structure of)
 RN 120410-87-9 CAPLUS
 CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-,
 μ -carbonyldecacarbonyl[μ_4 -(1,2-distibinediylidene-
 Sb,Sb':Sb,Sb':Sb,Sb':Sb,Sb')]tetracobaltate(1-) (3Co-Co) (9CI) (CA INDEX
 NAME)
 CM 1
 CRN 120410-86-8
 CMF C11 Co4 O11 Sb2
 CCI CCS



CM 2

CRN 48236-06-2

CMF C36 H30 N P2

Ph3F—N≡PPh3

L143 ANSWER 15 OF 16 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1984:490008 CAPLUS Full-text

DOCUMENT NUMBER: 101:90008

ORIGINAL REFERENCE NO.: 101:13795a,13798a

TITLE: Solvent properties of dichloromethane. 1. The reactivity of dichloromethane toward some ionic nucleophiles. Dichloromethane as solvent for Finkelstein reactions

AUTHOR(S): Bekkevold, Steinar; Svorstol, Idar; Hoeiland, Harald; Songstad, Jon

CORPORATE SOURCE: Dep. Chem., Univ. Bergen, Bergen, N-5000, Norway

SOURCE: Acta Chemica Scandinavica, Series B: Organic Chemistry and Biochemistry (1983), B37(10), 935-45
CODEN: ACBOCV; ISSN: 0302-4369

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The reactions of CH₂Cl₂ with various pseudohalide ions (N₃⁻, NC⁻, NCTe⁻, NCSe⁻, NCS⁻ and OCN⁻) were studied kinetically under homogeneous conditions in CH₂Cl₂ as solvent at 25.0°. In the 10⁻³ M concentration range the half-lives of the reactions are 70 min (N₃⁻), 80 min (NC⁻), 15 h (NCTe⁻), 60 h (NCSe⁻), 400 h (NCS⁻) and 600 h (OCN⁻). 1,2-Dichloroethane in 1,2-dichloroethane is slightly more reactive toward N₃⁻ and NCS⁻ with half-lives of 60 min and 150 h, resp. CH₂Br₂ in CH₂Br₂ is 400 times as reactive as is CH₂Cl₂ in CH₂Cl₂ toward NCS⁻. The homogeneous Finkelstein reactions between MeI and NCS⁻ and Cl⁻ in CH₂Cl₂ were studied kinetically at 25.0°. When corrected for ion-pairing the second order rate consts. are fairly independent of the counterion. The MeI-NCS⁻ and the MeI-Cl⁻ reactions proceed as rapidly in CH₂Cl₂ as in the usual dipolar aprotic solvents of considerably higher dielec. consts. The relative uncorrected second order rate consts. for the MeI-NCS⁻ reaction in CH₂Cl₂, in 1,2-dichloroethane, and in 1,1,2,2-tetrachloroethane are 1:0.8:0.2 at 25.0°.

CC 22-4 (Physical Organic Chemistry)

IT 38011-34-6 38011-36-8 38420-68-7 53900-22-4 65300-07-4

65300-08-5 65300-09-6 65300-19-8 65300-20-1

65300-21-2 65300-22-3 65300-23-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with dichloromethane, kinetics of)
 IT 65300-08-5 65300-09-6 65300-22-3
 65300-23-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with dichloromethane, kinetics of)
 RN 65300-08-5 CAPLUS
 CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-,
 selenocyanate (9CI) (CA INDEX NAME)

CM 1

CRN 48236-06-2

CMF C36 H30 N P2

$\text{Ph}_3\text{P}=\text{N}=\text{PPh}_3$

CM 2

CRN 5749-48-4

CMF C N Se

$-\text{Se}-\text{C}\equiv\text{N}$

RN 65300-09-6 CAPLUS
 CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-,
 tellurocyanate (9CI) (CA INDEX NAME)

CM 1

CRN 48236-06-2

CMF C36 H30 N P2

$\text{Ph}_3\text{P}=\text{N}=\text{PPh}_3$

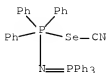
CM 2

CRN 25928-34-1

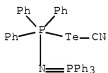
CMF C N Te

$-\text{Te}-\text{C}\equiv\text{N}$

RN 65300-22-3 CAPLUS
 CN Selenocyanic acid, triphenyl[(triphenylphosphoranylidene)amino]phosphorany
 l ester (CA INDEX NAME)



RN 65300-23-4 CAPLUS
 CN Tellurocyanic acid, triphenyl[(triphenylphosphoranylidene)amino]phosphoran
 yl ester (CA INDEX NAME)



L143 ANSWER 16 OF 16 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1978:62456 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 88:62456

ORIGINAL REFERENCE NO.: 88:9871a,9874a

TITLE: Preparation and properties of some
 bis(triphenylphosphine)iminium salts, [(Ph₃P)₂N]⁺X⁻

AUTHOR(S): Martinsen, Arve; Songstad, Jon

CORPORATE SOURCE: Dep. Chem., Univ. Bergen, Bergen, Norway

SOURCE: Acta Chemica Scandinavica, Series A: Physical and
 Inorganic Chemistry (1977), 31(8), 645-50
 CODEN: ACAPCT; ISSN: 0302-4377

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Bis(triphenylphosphine)iminium salts [(Ph₃P)₂N]⁺X⁻ (X = halo, SO₄²⁻, MnO₄⁻,
 SeCN⁻, TeCN⁻, etc.) were prepared from [(Ph₃P)₂N]Cl by precipitation with
 excess alkali metal salts in water. The salts are simple to purify and are
 nonhygroscopic. Their sols. in a number of dipolar aprotic solvents suggest
 that the [(Ph₃P)₂N]⁺ cation is an alternative to the usual cations for
 synthetic and kinetic studies in such solvents.

CC 29-7 (Organometallic and Organometalloidal Compounds)

IT 20545-30-6P 20545-30-6P 38011-30-2P 38011-33-5P 38011-34-6P

38011-35-7P 38011-36-8P 38420-68-7P 53408-56-3P 53900-22-4P

59386-05-9P 59386-06-0P 64896-74-8P 65300-00-7P 65300-01-8P

65300-02-9P 65300-03-0P 65300-04-1P 65300-05-2P 65300-07-4P

65300-08-5P 65300-09-6P 65300-13-2P 65300-14-3P

65300-15-4P 65300-16-5P 65300-17-6P 65300-18-7P 65300-19-8P

65300-20-1P 65300-21-2P 65300-22-3P 65300-23-4P

65307-96-2P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)

IT 65300-08-5P 65300-09-6P 65300-22-3P

65300-23-4P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)

RN 65300-08-5 CAPLUS

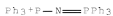
CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-,

selenocyanate (9CI) (CA INDEX NAME)

CM 1

CRN 48236-06-2

CMF C36 H30 N P2



CM 2

CRN 5749-48-4

CMF C N Se



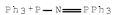
RN 65300-09-6 CAPLUS

CN Phosphorus(1+), triphenyl(P,P,P-triphenylphosphine imidato-N)-, (T-4)-, tellurocyanate (9CI) (CA INDEX NAME)

CM 1

CRN 48236-06-2

CMF C36 H30 N P2



CM 2

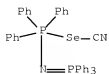
CRN 25928-34-1

CMF C N Te



RN 65300-22-3 CAPLUS

CN Selenocyanic acid, triphenyl[(triphenylphosphoranylidene)amino]phosphoranyl ester (CA INDEX NAME)



SEARCH HISTORY

=> d stat que 193; d stat que 153; d stat que 159; d his nofile
 L5 STR



NODE ATTRIBUTES:

NSPEC IS RC AT 1
 NSPEC IS RC AT 2
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 2

STEREO ATTRIBUTES: NONE

L7 109078 SEA FILE=REGISTRY SSS FUL L5
 L67 STR



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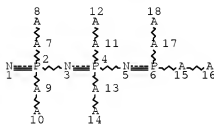
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STEREO ATTRIBUTES: NONE

L69 STR



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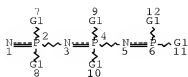
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GRAPH ATTRIBUTES:

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 NUMBER OF NODES IS 18

STEREO ATTRIBUTES: NONE

L70 STR



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NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

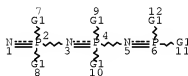
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NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE

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L91 STR



A 013

VAR G1=H/13

NODE ATTRIBUTES:

CONNECT IS E1 RC AT 13

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE

L93 55 SEA FILE=REGISTRY SUB=L81 SSS FUL L91

100.0% PROCESSED 129 ITERATIONS

55 ANSWERS

SEARCH TIME: 00.00.01

L5

STR



NODE ATTRIBUTES:

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NSPEC IS RC AT 2

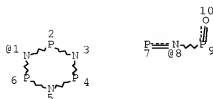
DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 2

STEREO ATTRIBUTES: NONE

L7 109078 SEA FILE=REGISTRY SSS FUL L5
L44 730 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND LI/ELS
L45 STR



G1 11

VAR G1=1/8

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE

L47 10744 SEA FILE=REGISTRY SUB=L7 SSS FUL L45
L48 98 SEA FILE=REGISTRY SPE=ON ABB=ON L47 AND L44
L53 18 SEA FILE=REGISTRY SPE=ON ABB=ON L48 AND F/ELS

L5 STR

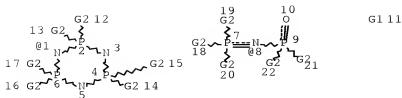


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NSPEC IS RC AT 2
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 2

STEREO ATTRIBUTES: NONE

L7 109078 SEA FILE=REGISTRY SSS FUL L5
L44 730 SEA FILE=REGISTRY SPE=ON ABB=ON L7 AND LI/ELS
L56 STR



VAR G1=1/8

VAR G2=N/F

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ELEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 22

STEREO ATTRIBUTES: NONE

L58 830 SEA FILE=REGISTRY SUB=L7 SSS FUL L56

L59 21 SEA FILE=REGISTRY SPE=ON ABB=ON L58 AND L44

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FILE 'CAPLUS' ENTERED AT 13:25:23 ON 29 MAR 2009

E US2004-518634/APPS

E US2005-518634/APPS

L1 1 SEA SPE=ON ABB=ON US2004-518634/APPS
D SCA
SEL RN

FILE 'REGISTRY' ENTERED AT 13:26:15 ON 29 MAR 2009

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OR 1313-13-9/BI OR 134435-36-2/BI OR 25322-68-3/BI OR 33027-66-
6/BI OR 485399-26-6/BI OR 52627-24-4/BI OR 55593-38-9/BI OR
593094-52-1/BI OR 639065-14-8/BI OR 639065-15-9/BI OR 639067-35
-9/BI OR 639067-36-0/BI OR 639067-37-1/BI OR 7439-93-2/BI OR
96-49-1/BI)

D SCAN

L3 1 SEA SPE=ON ABB=ON L2 AND HEXAKIS
D SCAN
D REG

L4 STR 134435-36-2

L5 STR

L6 50 SEA SSS SAM L5

L7 109078 SEA SSS FUL L5

FILE 'CAPLUS' ENTERED AT 13:28:57 ON 29 MAR 2009

L8 74083 SEA SPE=ON ABB=ON L7

D SCAN L1

E DEV+ALL/RL

L9 780 SEA SPE=ON ABB=ON L8(L)TEM/RL

L10 323 SEA SPE=ON ABB=ON L8(L)DEV/RL

L11 144202 SEA SPE=ON ABB=ON BATTER?/OBI

L12 260 SEA SPE=ON ABB=ON L8 AND L11
 L13 113 SEA SPE=ON ABB=ON (L9 OR L10) AND L11
 E APROTIC
 E APROTIC/CT
 E E5+ALL
 L14 16353 SEA SPE=ON ABB=ON APROTIC?/BI
 L15 147 SEA SPE=ON ABB=ON L12 NOT L13
 L16 12 SEA SPE=ON ABB=ON L12 AND L14
 D SCAN L1
 L17 186137 SEA SPE=ON ABB=ON SUPPORT?/OBI
 L18 3 SEA SPE=ON ABB=ON L8(L)L17 AND L11
 L19 2678 SEA SPE=ON ABB=ON L17(L)SALT#/OBI
 L20 2 SEA SPE=ON ABB=ON L19 AND L8 AND L11
 L21 0 SEA SPE=ON ABB=ON L20 NOT L18

FILE 'REGISTRY' ENTERED AT 13:35:44 ON 29 MAR 2009

L22 8 SEA SPE=ON ABB=ON L2 NOT L7

FILE 'CAPLUS' ENTERED AT 13:36:02 ON 29 MAR 2009

L23 250787 SEA SPE=ON ABB=ON L22
 L24 140 SEA SPE=ON ABB=ON L23 AND L8 AND L11
 L25 77091 SEA SPE=ON ABB=ON ANODE#/OBI
 L26 108158 SEA SPE=ON ABB=ON CATHODE#/OBI
 L27 346576 SEA SPE=ON ABB=ON ELECTRODE#/OBI
 L28 6060 SEA SPE=ON ABB=ON L27(L)POS?/OBI
 L29 6316 SEA SPE=ON ABB=ON L27(L)NEG?/OBI
 L30 30 SEA SPE=ON ABB=ON (L25 OR L28) AND (L26 OR L29) AND L8
 L31 19 SEA SPE=ON ABB=ON (L25 OR L28) AND (L26 OR L29) AND L8 AND
 L23
 L32 87563 SEA SPE=ON ABB=ON FUEL CELL#/OBI
 D QUE L16 NOS
 D QUE L18 NOS
 L33 13 SEA SPE=ON ABB=ON L8 AND (L11 OR L32) AND L14
 L34 3 SEA SPE=ON ABB=ON L8(L)L17 AND (L11 OR L32)
 L35 24 SEA SPE=ON ABB=ON (L25 OR L28) AND (L26 OR L29) AND L8 AND
 (L23 OR L11)
 L36 17 SEA SPE=ON ABB=ON (L25 OR L28) AND (L26 OR L29) AND (L9 OR
 L10) AND (L23 OR L11)
 L37 7 SEA SPE=ON ABB=ON L35 NOT L36
 L38 30050 SEA SPE=ON ABB=ON NONAQ?/OBI OR NON/OBI(W)AQUEOUS/OBI
 L39 6 SEA SPE=ON ABB=ON L35 AND L38
 L40 67 SEA SPE=ON ABB=ON L23 AND L8 AND (L23 OR L11) AND L38
 L41 53 SEA SPE=ON ABB=ON L23 AND L8 AND (L32 OR L11) AND L38
 L42 12 SEA SPE=ON ABB=ON L23 AND L8 AND (L32 OR L11) AND L38 AND
 (L25 OR L26 OR L28 OR L29)

FILE 'REGISTRY' ENTERED AT 13:46:07 ON 29 MAR 2009

L43 10 SEA SPE=ON ABB=ON L2 AND L7
 D SCAN
 L44 730 SEA SPE=ON ABB=ON L7 AND LI/ELS
 L45 STR
 L46 50 SEA SUB=L7 SSS SAM L45
 L47 10744 SEA SUB=L7 SSS FUL L45
 SAVE TEMP L47 WEI634SUB1/A
 L48 98 SEA SPE=ON ABB=ON L47 AND L44
 SAVE TEMP L48 WEI634SUB2/A

FILE 'CAPLUS' ENTERED AT 13:51:13 ON 29 MAR 2009

L49 55 SEA SPE=ON ABB=ON L48
 L50 3 SEA SPE=ON ABB=ON (L32 OR L11) AND L49

D PY L49 55
 L51 4 SEA SPE=ON ABB=ON L49 AND (L32 OR L11 OR L38 OR L25 OR L26
 OR L28 OR L29 OR L14 OR L9 OR L10 OR L17)
 L52 3 SEA SPE=ON ABB=ON L23 AND L49
 FILE 'REGISTRY' ENTERED AT 13:56:49 ON 29 MAR 2009
 L53 18 SEA SPE=ON ABB=ON L48 AND F/ELS
 FILE 'CAPLUS' ENTERED AT 13:57:46 ON 29 MAR 2009
 L54 9 SEA SPE=ON ABB=ON L53
 FILE 'REGISTRY' ENTERED AT 13:58:01 ON 29 MAR 2009
 L55 80 SEA SPE=ON ABB=ON L48 NOT L53
 D SCAN
 D QUE L48
 L56 STR L45
 L57 38 SEA SUB=L7 SSS SAM L56
 L58 830 SEA SUB=L7 SSS FUL L56
 SAVE TEMP L58 WEI634SUB3/A
 L59 21 SEA SPE=ON ABB=ON L58 AND L44
 SAVE TEMP L59 WEI634SUB4/A
 D QUE L48
 FILE 'CAPLUS' ENTERED AT 14:04:50 ON 29 MAR 2009
 L60 8 SEA SPE=ON ABB=ON L59
 L61 16 SEA SPE=ON ABB=ON (L54 OR L60)
 L62 4 SEA SPE=ON ABB=ON (L51 OR L52) NOT L61
 D SCAN
 E 72/SC
 L63 369118 SEA SPE=ON ABB=ON 72/SC,SX
 L64 2 SEA SPE=ON ABB=ON L49 AND L63 AND (L51 OR L52)
 FILE 'REGISTRY' ENTERED AT 14:08:52 ON 29 MAR 2009
 L65 STR
 L66 50 SEA SUB=L7 SSS SAM L65
 L67 STR L65
 L68 12 SEA SUB=L7 SSS SAM L67
 L69 STR L67
 L70 STR L67
 L71 5 SEA SUB=L7 SSS SAM L67 NOT ((L69 OR L70))
 D SCAN
 FILE 'STNGUIDE' ENTERED AT 14:17:25 ON 29 MAR 2009
 FILE 'REGISTRY' ENTERED AT 14:19:59 ON 29 MAR 2009
 L72 STR
 L73 50 SEA SUB=L7 SSS SAM L72
 L74 STR L72
 L75 50 SEA SUB=L7 SSS SAM L74
 L76 STR L74
 L77 50 SEA SUB=L7 SSS SAM L76
 L78 STR L76
 L79 50 SEA SUB=L7 SSS SAM (L78 NOT L76)
 D QUE L71
 L80 5 SEA SUB=L7 SSS SAM (L67 NOT ((L69 OR L70)))
 L81 129 SEA SUB=L7 SSS FUL (L67 NOT ((L69 OR L70)))
 SAVE TEMP L81 WEI634SUB5/A
 FILE 'CAPLUS' ENTERED AT 14:27:49 ON 29 MAR 2009
 L82 73 SEA SPE=ON ABB=ON L81

L83 1 SEA SPE=ON ABB=ON L82 AND (L32 OR L11)
 L84 4 SEA SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR L26 OR L28 OR
 L29 OR L14 OR L9 OR L10 OR L17 OR L23) AND L82
 L85 4 SEA SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR L26 OR L28 OR
 L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63) AND L82
 D PY L82 73
 D QUE NOS L85
 D AB L1
 L86 395023 SEA SPE=ON ABB=ON VISCOSITY/BI
 E MPA/BI
 E MPAS/BI
 E CP/BI
 L87 162255 SEA SPE=ON ABB=ON MPA#/BI
 L88 105019 SEA SPE=ON ABB=ON CP/BI
 L89 6 SEA SPE=ON ABB=ON L82 AND (L86 OR L87 OR L88)

FILE 'REGISTRY' ENTERED AT 14:33:24 ON 29 MAR 2009

L90 82 SEA SPE=ON ABB=ON L81 NOT O/ELS
 D QUE L81
 L91 STR L70
 L92 3 SEA SUB=L81 SSS SAM L91
 D SCAN
 L93 55 SEA SUB=L81 SSS FUL L91
 SAVE TEMP L93 WEI634SUB6/A

FILE 'CAPLUS' ENTERED AT 14:37:25 ON 29 MAR 2009

L94 41 SEA SPE=ON ABB=ON L93
 L95 2165 SEA SPE=ON ABB=ON L8 AND (L86 OR L87 OR L88)
 L96 4 SEA SPE=ON ABB=ON L8 AND (L86 OR L87 OR L88) AND (L11 OR
 L32)
 D SCAN L1

FILE 'REGISTRY' ENTERED AT 14:40:19 ON 29 MAR 2009

L97 226 SEA SPE=ON ABB=ON L7 AND GE/ELS
 L98 375 SEA SPE=ON ABB=ON L7 AND SN/ELS
 L99 146 SEA SPE=ON ABB=ON L7 AND AS/ELS
 L100 243 SEA SPE=ON ABB=ON L7 AND SB/ELS
 L101 43 SEA SPE=ON ABB=ON L7 AND BI/ELS
 L102 622 SEA SPE=ON ABB=ON L7 AND SE/ELS
 L103 186 SEA SPE=ON ABB=ON L7 AND TE/ELS
 L104 0 SEA SPE=ON ABB=ON L7 AND PO/ELS

FILE 'CAPLUS' ENTERED AT 14:41:37 ON 29 MAR 2009

L105 67 SEA SPE=ON ABB=ON L97
 L106 181 SEA SPE=ON ABB=ON L98
 L107 66 SEA SPE=ON ABB=ON L99
 L108 106 SEA SPE=ON ABB=ON L100
 L109 23 SEA SPE=ON ABB=ON L101
 L110 385 SEA SPE=ON ABB=ON L102
 L111 97 SEA SPE=ON ABB=ON L103
 L112 0 SEA SPE=ON ABB=ON (L105 OR L106 OR L107 OR L108 OR L109 OR
 L110 OR L111) AND (L32 OR L11)
 L113 39 SEA SPE=ON ABB=ON (L105 OR L106 OR L107 OR L108 OR L109 OR
 L110 OR L111) AND (L32 OR L11 OR L38 OR L25 OR L26 OR L28 OR
 L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63)
 L114 19 SEA SPE=ON ABB=ON (L86 OR L87 OR L88) AND (L105 OR L106 OR
 L107 OR L108 OR L109 OR L110 OR L111)
 L115 2 SEA SPE=ON ABB=ON L113 AND L114
 L116 0 SEA SPE=ON ABB=ON L105 AND (L32 OR L11 OR L38 OR L25 OR L26
 OR L28 OR L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63)

L117 5 SEA SPE=ON ABB=ON L106 AND (L32 OR L11 OR L38 OR L25 OR L26
 OR L28 OR L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63)
 L118 0 SEA SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR L26 OR L28 OR
 L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63) AND L107
 L119 6 SEA SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR L26 OR L28 OR
 L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63) AND L108
 L120 1 SEA SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR L26 OR L28 OR
 L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63) AND L109
 L121 22 SEA SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR L26 OR L28 OR
 L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63) AND L110
 L122 10 SEA SPE=ON ABB=ON (L32 OR L11 OR L38 OR L25 OR L26 OR L28 OR
 L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63) AND L111
 L123 4 SEA SPE=ON ABB=ON L121 AND L122
 L124 61371 SEA SPE=ON ABB=ON ELECTROLYT?/OBI(L)CELL#/OBI
 L125 58 SEA SPE=ON ABB=ON L8 AND L124
 L126 0 SEA SPE=ON ABB=ON (L105 OR L106 OR L107 OR L108 OR L109 OR
 L110 OR L111) AND L124
 L127 0 SEA SPE=ON ABB=ON L93 AND L124
 D QUE NOS L94
 L128 1 SEA SPE=ON ABB=ON L8 AND L124 AND L38
 D QUE NOS L54
 D QUE NOS L60
 D QUE NOS L64
 L129 0 SEA SPE=ON ABB=ON L49 AND L124
 D QUE NOS L128
 L130 56 SEA SPE=ON ABB=ON L8 AND L124 AND (L32 OR L11 OR L38 OR L25
 OR L26 OR L28 OR L29 OR L14 OR L9 OR L10 OR L17 OR L23 OR L63)
 D QUE NOS
 L131 45 SEA SPE=ON ABB=ON L8 AND L124 AND (L9 OR L10 OR L14 OR L17
 OR L25 OR L26 OR L28 OR L29 OR L38)
 L132 23 SEA SPE=ON ABB=ON L8 AND L124 AND L9
 L133 20 SEA SPE=ON ABB=ON L8 AND L124 AND L10
 L134 14 SEA SPE=ON ABB=ON L8 AND L124 AND (L14 OR L17 OR L25 OR L26
 OR L28 OR L29 OR L38)
 L135 10 SEA SPE=ON ABB=ON L134 AND (L9 OR L10)
 L136 11 SEA SPE=ON ABB=ON L134 AND (L11 OR L32)
 L137 11 SEA SPE=ON ABB=ON (L135 OR L136)
 L138 3 SEA SPE=ON ABB=ON L134 NOT L137
 D SCAN

FILE 'REGISTRY' ENTERED AT 14:55:44 ON 29 MAR 2009
 D STAT QUE L7

FILE 'CAPLUS' ENTERED AT 14:56:00 ON 29 MAR 2009

D QUE NOS L33
 D QUE NOS L34
 D QUE NOS L39
 D QUE NOS L42
 D QUE NOS L128
 L139 29 SEA SPE=ON ABB=ON (L33 OR L34 OR L39 OR L42 OR L128)
 D IBIB ABS HITSTR L139 1-29

FILE 'REGISTRY' ENTERED AT 14:56:52 ON 29 MAR 2009
 D STAT QUE L53
 D STAT QUE L59

FILE 'CAPLUS' ENTERED AT 14:57:04 ON 29 MAR 2009
 D QUE NOS L54
 D QUE NOS L60
 D QUE NOS L64

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D QUE NOS L129
L140      17 SEA SPE=ON ABB=ON (L54 OR L60 OR L64) NOT L139
D IBIB ABS HITIND HITSTR L140 1-17

FILE 'REGISTRY' ENTERED AT 14:58:05 ON 29 MAR 2009
D STAT QUE L93

FILE 'CAPLUS' ENTERED AT 14:58:05 ON 29 MAR 2009
D QUE NOS L94
L141      41 SEA SPE=ON ABB=ON L94 NOT (L139 OR L140)
D IBIB ABS HITSTR L141 1-41
D QUE NOS L96
L142      3 SEA SPE=ON ABB=ON L96 NOT (L139 OR L140 OR L141)
D IBIB ABS HITIND HITSTR L142 1-3

FILE 'REGISTRY' ENTERED AT 14:59:26 ON 29 MAR 2009
D QUE NOS L104

FILE 'CAPLUS' ENTERED AT 14:59:52 ON 29 MAR 2009
D QUE NOS L115
D QUE NOS L117
D QUE NOS L119
D QUE NOS L120
D QUE NOS L123
D QUE NOS L116
D QUE NOS L118
D QUE NOS L126
L143      16 SEA SPE=ON ABB=ON (L115 OR L117 OR L119 OR L120 OR L123) NOT
(L139 OR L140 OR L141 OR L142)
D IBIB ABS HITIND HITSTR 1-16

FILE 'HOME' ENTERED AT 15:00:50 ON 29 MAR 2009
D STAT QUE L93
D STAT QUE L53
D STAT QUE L59

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